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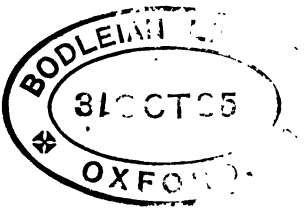

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PREFACE.

In this Reader the Reading Lessons, it is believed, have the same attraction of freshness as has been so generally commended in the earlier Readers of the **Public School Series.**

Biographical Notices of all the authors have been given, except when they have already appeared in the earlier Readers.

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A **Special** and **Distinctive Feature** of the Fourth and Fifth Readers was the carefully prepared **Lessons** on the **Specific Subjects** in various Sciences appointed by Government for each Standard. These **Lessons** have been continued in this Reader, with the same care and fulness. They have been so written as to be suitable, as a rule, for Reading Lessons.

The Poetical and Shaksperian extracts have been collated with the best editions.

The **Illustrations** in this Reader, as will be seen, are by the best artists, and are no fewer than one hundred and fifty-six in number.

In issuing this, the last Reader of the Series, the Editor cannot refrain from the hope that all teachers into whose hands it may come may realise the greatness of their office. The pulpit is of priceless value in keeping alive the sense of a higher life than the merely selfish and material, but the schoolmaster's desk may already sow the seeds of such a true ideal of life in the soft and warm soil of childhood. The teacher who limits his conception of his office to the communication of facts and mechanical acquirements, has forgotten that the little creatures before him are the men and women of the world to be, and that much more depends on their character and principles than on their attainments. To train them to think is infinitely more than to feed them with mere facts; but to teach them to think nobly, alone makes their thinking a blessing. Teachers will forgive the Editor, if, with a deep sense of the responsibility of his work and theirs, he reminds them that their lives and character are the great lessons from which their scholars must daily learn. If the teacher be a true man, the child will certainly catch more or less of his spirit. For the teacher is ever the highest on earth, next to the parent, to those under his care. In the breast of every child lie possibilities of untold good or evil, and a reverence for the Unseen and Eternal, which alone quickens the one, and checks the growth of the other. Take that away and the whole universe is no higher or better to us than this earth; the night ever swallowing up the day. Cultivate it, in life, word, spirit, and the cloudiest sky of after-life is arched by rainbows, and there is the clear shining of the sun after every storm, turning the raindrops into glittering light.

Let me close with some lines from Coleridge:

"O'er wayward children wouldst thou hold firm rule,
And sun thee in the light of happy faces;
Love, Hope, and Patience, these must be thy graces,
And in thine *own* heart let them first keep school.

* * * * * *

O part them never! If Hope prostrate lie,
Love, too, will sink and die.

* * * * * *

Yet haply there will come a weary day
When, overtask'd at length,
Both Love and Hope beneath the load give way.
Then, with a statue's smile, a statue's strength,
Stands the mute sister, Patience, nothing loth,
And, both supporting, does the work of both."

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SIXTH READER.

ROMAN EAGLE.

CONSTANTINE.—*Dean Stanley.**

THE Emperor Constantine is one of the few to whom has been awarded the name of "Great." Though this was deserved rather by what he did, than by what he was; though he was great, not among the first characters of the world, but among the second—great like Philip, not like Alexander; great like Augustus, not like Cæsar; great with the elevation of Charlemagne or Elizabeth, not with the genius or passion of Cromwell or of Luther; yet this gives us a stronger sense of what the position was which could of itself confer such undoubted grandeur on a character less than the highest.

To English students I cannot forbear recalling that he was, if not our fellow-countryman by birth, yet unquestionably proclaimed Emperor in the Prætorium at York. He probably never visited our shores again. Yet the remembrance of that early connection long continued. It shaped itself into the legend of his British birth, of which, within the walls of York,

* See "Fifth Reader," p. 42.

the scene is still shown. His father's tomb was pointed out in York till the suppression of the monasteries. His mother's name lives still in the numerous British churches dedicated to her. London Wall was ascribed to him.

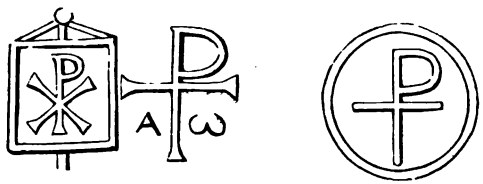
As he appeared in the council of Nicæa—handsome, tall, stout, broad-shouldered—he was a high specimen of one of the coarse military chiefs of the declining Empire. When Eusebius first saw him, as a young man, on a journey through Palestine before his accession, all were struck by the sturdy health and vigour of his frame; and Eusebius perpetually recurs to it, and maintains that it lasted till the end of his life. In his later days his red complexion and somewhat bloated appearance gave countenance to the belief that he had been affected with leprosy. His eye was remarkable for a brightness, almost a glare, which reminded his courtiers of that of a lion. He had a contemptuous habit of throwing back his head, which, by bringing out the full proportions of his thick neck, procured for him the nickname of *Trachala*. His voice was remarkable for its gentleness and softness. In dress and outward demeanour the military commander was almost lost in the variety and affectation of Oriental splendour. The spear of the soldier was almost always in his hand, and on his head he always wore a small helmet. But the helmet was studded with jewels, and it was bound round with the Oriental diadem, which he, first of the Emperors, made a practice of wearing on all occasions. His robe was remarked for its unusual magnificence. It was always of the Imperial purple or scarlet, and was made of silk, richly embroidered with pearls and flowers worked in gold. He was specially devoted to the care of his hair, ultimately adopting wigs of false hair of various colours, and in such profusion as to make a marked feature on his coins. First of the Emperors, since Hadrian, he wore a short beard.

He was not a great man, but he was by no means an ordinary man. Calculating and shrewd as he was, yet his worldly views were penetrated by a vein of religious sentiment, almost of Oriental superstition. He had a wide view of his difficult position as the ruler of a divided Empire and divided Church. He had a short dry humour which stamps his sayings with an unmistakable authenticity, and gives us an insight into the cynical contempt of mankind which he is said to have combined, by a curious yet not uncommon union, with an inordinate love of praise. He had the capacity of throwing himself, with almost fanatical energy, into whatever cause came before him

for the moment. We have seen from his dress, and we see also from his language, that he was not without the wretched affectation which disfigured the demeanour of the later Emperors. Against one great old Roman vice, that of voracious gluttony, he struggled, but struggled in vain. It was only as despotic power and Eastern manners made inroads into the original self-control of his character that he was betrayed into that disregard of human life, in his nearest and dearest relationships, which, from the same causes, darkened the declining years of the Grecian Alexander, and the English Henry.

Every student of ecclesiastical history must pause for a moment before the conversion of Constantine. No conversion of such magnitude had occurred since the apostolic age. None such occurred again till the baptism of the several founders of the Teutonic and Sclavonic kingdoms.

Like all such events, it had its peculiar preparations, and took its peculiar colouring from the circumstances of the time



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1. The standard of Constantine as delineated on his coins.
2 and 3. Copied from the monuments of the earliest age of the Christian Church, in the catacombs of Rome. The name *Labarum* was given to this device. The monogram consists of the first two letters of the name of Christ—X, *ch* and P, *r*. In Fig. 2 the letters Alpha and Omega are added. Instead of such symbols the figure of Christ, woven in gold, upon purple cloth encrusted with precious stones, was sometimes introduced, instead of the portrait of the Emperor, It does not follow that the eagle atop of the standard was displaced by this innovation. It would rather seem to have remained, with the altered emblazonment below it.

and the character of the man. He had the remembrance of his father Constantius—just such a "devout" believer in Divine Providence as we find so common in the Roman army several generations earlier, in the many good centurions of the New Testament. He had a lively recollection of the Christian arguments used before Diocletian. His rival Maxentius was a fierce fanatical Pagan, armed with magical arts, as was supposed, against which any counter supernatural influences were much to be cherished. He was approaching Rome for the first time, and was filled with the awe which that greatest of earthly cities inspired in all who named its name, or came within its

influence. It is needless to repeat at length the story which Eusebius gives on the testimony of the Emperor himself. That he was in prayer on his march;—that "about noon, as the day was declining," a flaming cross appeared in the sky with the words, "In this conquer;"—that in the night which followed he saw in a dream the figure of Christ bearing a standard, such as in Christian pictures is represented in the Descent to the departed spirits;—that on consultation with Christian clergy in the camp he adopted this sacred banner instead of the Roman eagles, and professed himself a disciple of the Christian faith. There are various versions of the story given, materially different from this, but it is clear that some such change, effected by some such means, took place at this crisis; and this idea is confirmed by the fact, not only of Constantine's adoption of the Christian faith immediately afterwards, but by the specific introduction of the standard of the cross into the army.

And it is indisputable, that from that hour he went steadily forward in the main purpose of his life, that of protecting and advancing the cause of the Christian religion. Julian's face was not set more steadily backwards, than was Constantine's steadily forwards. The one devoted himself to the revival of that which had waxed old, and was ready to vanish away; the other to the advancement of that which year by year was gaining in strength and life.

It is not necessary to do more than enumerate the acts of Constantine's ecclesiastical legislation, in order to see the vastness of the revolution of which he was the leader.

In the year 313 was issued the Edict of Toleration. Then followed, in rapid succession, the decree for the observance of Sunday in the towns of the Empire, the use of prayers for the army, the abolition of the punishment of crucifixion, the encouragement of the emancipation of slaves, the discouragement of infanticide, the prohibition of private divinations, the prohibition of licentious and cruel rites, the prohibition of gladiatorial games. Every one of these steps was a gain to the Roman Empire and to mankind, such as not even the Antonines had ventured to attempt, and of those benefits none has been altogether lost. Undoubtedly, if Constantine is to be judged by the place which he occupies amongst the benefactors of humanity, he would rank, not amongst the secondary characters of history, but amongst the very first. And here we may quote the striking remarks of Niebuhr:—"Many judge of Constantine by too severe a standard, because they regard him as a Christian; but

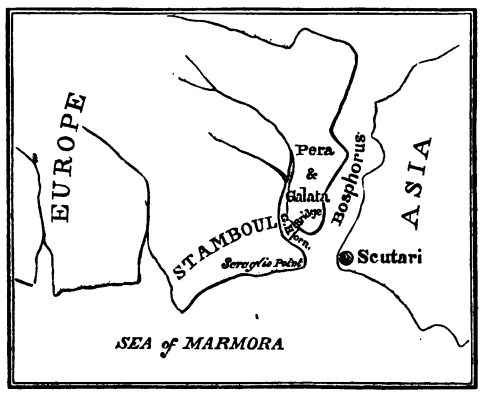
I cannot look upon him in that light. The religion which he had in his head must have been a strange jumble indeed. . . . . He was a superstitious man, and mixed up his Christian religion with all kinds of superstitions and opinions. When certain Oriental writers call him 'equal to the Apostles,' they do not know what they are saying; and to speak of him as a saint is a profanation of the word."

What his personal convictions may have been, in regard to the peculiar doctrines which he successively attacked and defended, it is impossible to determine. But we cannot doubt his sincere interest in some at least of the questions which were raised. Like his nephew Julian, although with a far ruder education and less fantastic mind, he threw himself into the disputations of the time as a serious business of Imperial state. Not only did he at the festival of Easter spend the night in prayer with every appearance of devotion, and even preside at the most sacred ceremonies, but he alternately, as student or teacher, took part in Christian preaching. If he did listen to the sermons of others, it was regarded as an act of the highest condescension. Eusebius has left us an account of one which he himself delivered to "the marvellous man," as he calls him, on the Church of the Holy Sepulchre. It was in the Palace. There was a crowded audience. The Emperor stood erect the whole time; would not be induced to sit down on the throne close by; paid the utmost attention; would not hear of the sermon being too long; insisted on its continuance; and, on being again entreated to sit down, replied, with a frown, that he could not bear to hear the truths of religion in any easier posture. More often he was himself the preacher. One such sermon has been preserved to us by Eusebius. These sermons were always in Latin; but they were translated into Greek by interpreters appointed for the purpose. On these occasions a general invitation was issued, and thousands of people flocked to the Palace to hear the Emperor turn preacher. He stood erect; and then, with a set countenance and grave voice, poured forth his address; to which, at the striking passages, the audience responded with loud cheers of approbation, the Emperor vainly endeavouring to deter them by pointing upwards, as if to transfer the glory from himself to Heaven.

There is no act of the life of Constantine so deeply instructive as his death. It was Easter, in the year 337. In the Church of the Apostles at Constantinople he had passed the night, with more than his usual devotion, in preparation for his Persian

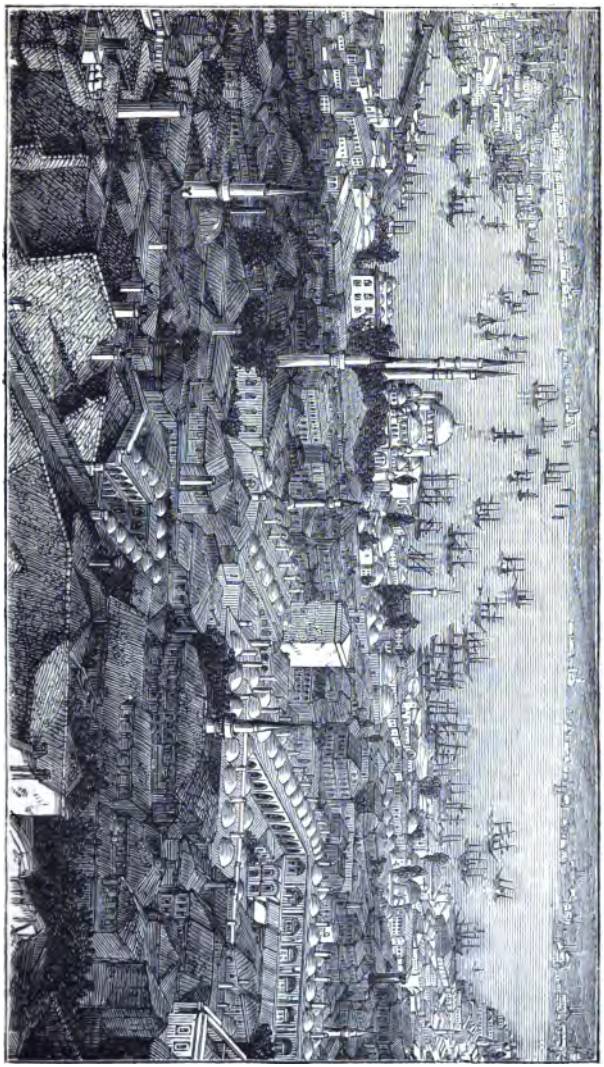
expedition. An illness supervened; he went to Helenopolis to try the mineral waters in the neighbourhood. The illness increased; a sinister suspicion of poison stole through the palace. He felt that it was mortal, and now at last he determined on taking the step, long delayed, but not yet impossible, of admission to the Christian Church.

The whole event is related in the utmost detail. In the Church at Helenopolis, in the unusual posture of devotion, that of kneeling, he was admitted to be a catechumen by the imposition of hands. He then moved to a palace in the suburb of Nicomedia, and then calling the bishops around him, announced that once he had hoped to receive the purification of baptism, after our Saviour's example, in the streams of the Jordan; but God's will seemed to be that it should be here, and he therefore requested to receive the rite without delay. "And so," says his biographer, "alone of Roman emperors from the beginning of time, was Constantine consecrated to be a witness of Christ in the second birth of baptism." The imperial purple was at last removed; he was clothed instead in robes of dazzling whiteness; his couch was covered with white also; in the white robes of baptism, on a white death-bed he lay, in expectation of his end. . . . . His own delight at the accomplishment of the ceremony was excessive; and when the officers of his army entered the chamber of death, with bitter lamentations, to make their last farewell, he bade them rejoice in his speedy departure heavenwards. At noon, on Whit-



Sketch map of Constantinople.*

* *Stamboul* is the old city, and gives its name to the whole, in Turkish. *Galata* is the foreign part, and *Pera* is the part inhabited by the ambassadors and richer classes. The European shops are in *Pera*. It is reached by streets cut into steps, as at Malta. The *bridge* rests on long, broad boats, and is densely thronged all day. *Scutari* is where the English had their hospital for soldiers during the Crimean war.



CONSTANTINOPLE.—VIEW FROM THE SERASKIER TOWER.

Sunday, the 22nd of May, in the sixty-fourth year of his age, and the thirty-first of his reign, he expired. A wild wail of grief arose from the army and the people, on hearing that Constantine was dead. The body was laid out in a coffin of gold, and carried by a procession of the whole army, headed by his son Constans, to Constantinople. For three months it lay there in state in the palace, lights burning round, and guards watching. During all this time the Empire was without a head. All went on as though he were yet alive. One dark shadow from the great tragedy of his life reached to his last end, and beyond it. It is said that the Bishop of Nicomedia, to whom the Emperor's will had been confided by Eustochius, alarmed at its contents, immediately placed it for security in the dead man's hand, wrapped in the vestments of death. There it lay till Constantius arrived, and read his father's dying request. It was believed to express the Emperor's dying conviction that he had been poisoned by his brothers and their children, and to call on Constantius to avenge his death. That bequest was obeyed by the massacre of six out of the surviving princes of the imperial family. Two alone escaped. With such a mingling of light and darkness did Constantine close his career.

When the tidings reached Rome, the old metropolis steadily ignored the revolution that had passed over the world in the person of the deceased Emperor. He was regarded but as one in the series of the Cæsars. He was enrolled, like his predecessors, as a matter of course, amongst the gods of the heathen Clympus. Incense was offered before his statue. A picture of his apotheosis was prepared. Festivals were celebrated in his honour.

But in his own Christian city of Constantinople he had himself arranged the altered celebration of his death. Not amongst the gods and heroes of heathenism, but amongst those who now seemed to him the nearest approach to them, the Christian Apostles, his lot was to be cast. He had prepared for his mausoleum a church,—sometimes, like that which he had founded at Rome, called the "Church of St. Peter," but more usually the "Church of the Apostles."

Thither the body was borne. Constantius was now present; and as it reached the church the prince (for he too was still an unbaptised catechumen) withdrew with the Pagan guards, and left the Imperial corpse alone, as it lay aloft in the centre of the church in its sarcophagus of porphyry. Prayers were offered for his soul; he was placed amongst the Apostles; and

he formally received the names which he had borne in life, and which then became so purely personal that they descended to his sons, "Victor, Maximus, Augustus."

So passionate was the attachment of the people of Constantinople to the tomb of their founder, that the attempt to remove it for safety to another church whilst its own was being prepared, provoked a sanguinary riot. The church became the royal burial-place of the Byzantine emperors. There they all lay in imperial state till in the fourth crusade the coffins were rifled and the bodies cast out.

NOTES.—*Constantine.*—Was born in February, 272, in Dardania, now part of Southern Austria. *Philip.*—King of Macedon, father of Alexander the Great; born, 359 B.C.; murdered, 336 B.C., at the age of thirty-three. *Alexander.*—His son, was born in the year 355 B.C.; died, 323 B.C., at the age of thirty-two, having conquered the world. *Augustus.*—Octavianus Cæsar, nephew of Julius Cæsar, and his successor in power. The first Roman Emperor. Born, 63 B.C.; made Emperor, 43 B.C.; died, A.D. 14, after a reign of fifty-seven years. *Cæsar.*—Julius Cæsar, born, 100 B.C.; murdered in the Senate House at Rome, 43 B.C.; made himself supreme in Rome, and paved the way for the Empire. *Charlemagne.*—Charlee the Great, King of the Franks, and founder of the German Empire; born in Bavaria, A.D. 742; died at Aix-la-Chapelle, where his skull is yet shown, A.D. 814. *Elizabeth.*—Daughter of Henry VIII. and Anne Boleyn; born, 1533; died, 1603; after a reign of forty-five years, having ascended the throne in 1558. *Cromwell.*—Oliver, Lord Protector of England; born at Huntingdon, 1599, son of a private gentleman; died, 1658. *Luther.*—*Martin*, the great German Reformer, son of a poor miner; born at Eisleben, Saxony, 1483; died, 1546. *Prætorium.*—Properly a general's tent, but used for the residence of the governor of a province, or for any large house or palace. Here, of the head-quarters, at the military post of York. *Suppression of the monasteries.*—Took place in 1535 and 1539, under Henry VIII. *His mother's name, Helena.*—From which we have St. Helen's. *His father.*—Constantius Chlorus, or "The Pale;" born about A.D. 250; died at York, July 25th, 306. *Nicæa.*—A town of Bithynia, Asia Minor. The great council which adopted the Nicene Creed met there in A.D. 325. *Eusebius.*—Bishop of Cæsarea and Ecclesiastical Historian; born in Palestine, about 270; died 338. *Trachala.*—"Thick neck." *Hadrian.*—Born, A.D. 76; died 139. *Cynical.*—Sneering, from the sect of the Cynics, founded by Diogenes, who died 323 B.C. The name was given them from their alleged want of modesty, and contempt of the feelings, ways, and aims of men. It means *doglike*, snarling, surly, &c. *Disregard of human life*, &c.—Constantine, in his later years, put to death his eldest son and Socinius, his nephew, A.D. 324. *Grecian Alexander.*—Alexander put to death Parmenion, a faithful general, and his son, in 330 B.C.; killed his friend Cleitus, in 329, and put to death a number of persons for "conspiracy," in 327. He died, 323, B.C. *Henry VIII.*—In his later years it was, sooner or later, death to almost any one to be high in his service. *Teutonic or Sclavonic kingdoms.*—Kingdoms of the race of the Teutons (Germans), or Slaves (Russians, Poles, &c). The Middle Age kingdoms. *Diocletian.*—Roman Emperor, born in Dalmatia, of very humble parents, A.D. 245. A great persecutor of the Christians. Abdicated, A.D. 305; died, 313. *Maxentius.*—Emperor, 306–312; defeated by Constantius, and drowned in the Tiber by the weight of his armour; a hateful tyrant. *Julian.*—Called the Apostate, but unjustly. Born 331; was Emperor 361–363, when he fell on the battlefield near Maronga, fighting against the Persians. Nephew of Constantine the Great; a man of high genius, of pure life, just, and great-minded. He sought to revive Paganism as better than the corrupt Christianity amidst which he had been brought up. *The Antonines.*—Antoninus Pius, who succeeded Hadrian; he died, A.D. 161, aged seventy-five years, and was succeeded by his adopted son, Marcus Aurelius Antoninus; born at Rome, in the year 121; died, 180, aged fifty-nine. Both, in many respects, most excellent men. *Niebuhr.*—A great Roman historian; born at Copenhagen, 1776; died, 1831. *Church of the Holy Sepulchre.*—At Jerusalem. *Stood erect.*—In the early Church the congregation always stood. They were not, indeed, allowed to sit down in church, nor would they have wished to do it, sitting appearing too irreverent. The preacher, however, sat, in accordance with Jewish custom. It

was also usual for the audience to express their approval of the preacher's language by loud applause, as we do now at public meetings. *Greek.*—Greek was spoken in Constantinople. *Easter.*—A feast in remembrance of the Resurrection of Our Lord. *Helenopolis.*—A city in Bithynia, Asia Minor, called, with several others, after Constantine's mother. *Catechumen.*—In the early Church, one taught only the principles of religion, but not baptised; or, if baptised, not yet admitted to the communion. *Nicomedia.*—A city of Bithynia. *Constans.*—Fourth son of Constantine. *Eustochius.*—The court physician. *Constantius.*—Afterwards Emperor, Constantine's third son. He murdered all his father's relatives, and two of his own brothers. It was under him that the Emperor Julian was brought up, in strict confinement. He claimed to be a Christian. *Olympus.*—The heaven of the ancients—from Mount Olympus, in Thessaly, on whose peak, which was thought to reach up into heaven, the gods were believed to hold their court. *Apotheosis.*—The raising to divine honours. *Victor.*—The conqueror. *Maximus.*—The greatest. *Augustus.*—The august. *Byzantine.*—Of Byzantium, or Constantinople. *Fourth Crusade.*—A.D. 1195, under Henry VI., Emperor of Germany.

COMPOSITION.—Write an abstract of the facts told respecting Constantine.

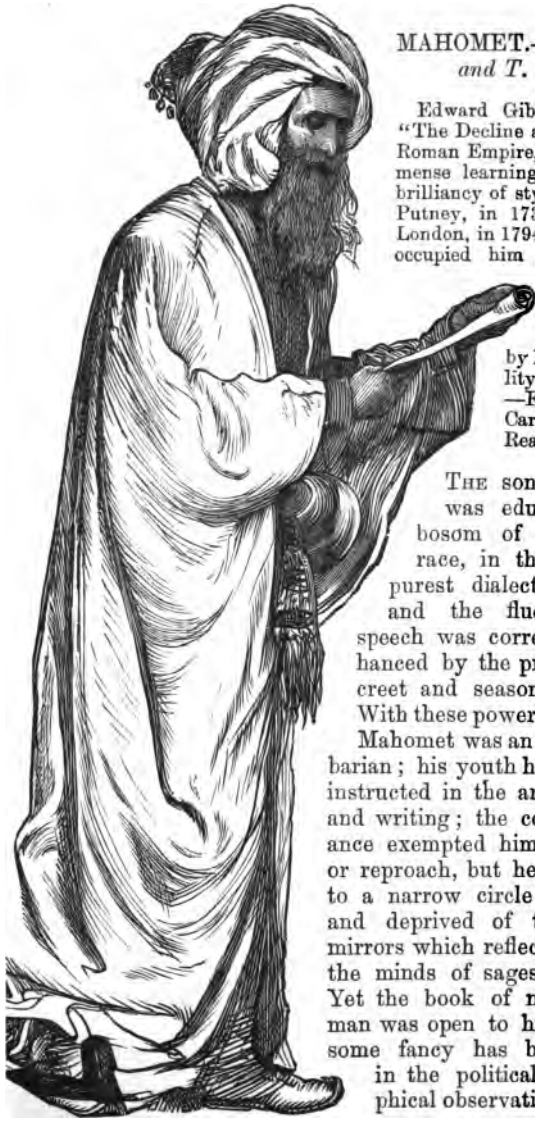
AN ENGLISH PEASANT.—*Crabbe.*

The Rev. George Crabbe, Rector of Trowbridge, Wilts, was born at Aldborough, Suffolk, in 1754. He was of humble origin, and owed his position in the Church to Burke, who saw his genius and assisted him. His principal poems are "The Library," "The Village," and "The Tales of the Hall." His style is marked by its minute fidelity to life and nature, which are painted with great force, pathos, and originality. His poems were the last book, except the Bible, read to Sir Walter Scott. He died in 1832. The following extract is from "The Parish Register."

NEXT to these ladies, but in nought allied,
A noble peasant, *Isaac Ashford*, died.
Noble he was, contemning all things mean,
His truth unquestioned and his soul serene:
Of no man's presence Isaac felt afraid;
At no man's question Isaac looked dismayed:
Shame knew him not, he dreaded no disgrace;
Truth, simple truth, was written in his face:
Yet while the serious thought his soul approved,
Cheerful he seemed, and gentleness he loved;
To bliss domestic he his heart resigned,

And with the firmest had the fondest mind:
Were others joyful, he looked smiling on,
And gave allowance where he needed none;
Good he refused with future ill to buy,
Nor knew a joy that caused reflection's sigh;
A friend to virtue, his unclouded breast
No envy stung, no jealousy distressed;
(Bane of the poor! it wounds their weaker mind,
To miss one favour, which their neighbours find.)
Yet far was he from Stoic pride removed;
He felt humanely, and he warmly loved:
I marked his action, when his infant died,
And his old neighbour for offence was tried;
The still tears, stealing down that furrowed cheek,
Spoke pity, plainer than the tongue can speak.
If pride was his, 'twas not their vulgar pride,
Who, in their base contempt, the great deride;
Nor pride in learning,—though my Clerk agreed,
If fate should call him, Ashford might succeed;
Nor pride in rustic skill, although we knew
None his superior, and his equals few:—
But if that spirit in his soul had place,
It was the jealous pride that shuns disgrace;
A pride in honest fame, by virtue gained,
In sturdy boys to virtuous labours trained;
Pride in the power that guards his country's coast,
And all that Englishmen enjoy and boast;
Pride in a life that slander's tongue defied,—
In fact, a noble passion, misnamed Pride.
I feel his absence in the hours of prayer,
And view his seat, and sigh for Isaac there;
I see no more those white locks thinly spread
Round the bald polish of that honoured head;
No more that awful glance on playful wight,
Compelled to kneel and tremble at the sight,
To fold his fingers, all in dread the while,
Till Mister Ashford softened to a smile;
No more that meek and suppliant look in prayer,
Nor the pure faith (to give it force), are there;—
But he is blest, and I lament no more,
A wise good man contented to be poor.

COMPOSITION.—Write the character of Isaac Ashford, in prose.



MAHOMET.—*E. Gibbon, and T. Carlyle.*

Edward Gibbon, author of "The Decline and Fall of the Roman Empire," a book of immense learning, and of great brilliancy of style, was born at Putney, in 1737, and died in London, in 1794. His History occupied him from October, 1764, to June, 1787, twenty-three years. It is marred by his covert hostility to Christianity. —For notice of Carlyle, see "Fifth Reader," p. 115.

THE son of Abdallah was educated in the bosom of the noblest race, in the use of the purest dialect of Arabia; and the fluency of his speech was corrected and enhanced by the practice of discreet and seasonable silence. With these powers of eloquence Mahomet was an illiterate barbarian; his youth had never been instructed in the arts of reading and writing; the common ignorance exempted him from shame or reproach, but he was reduced to a narrow circle of existence, and deprived of those faithful mirrors which reflect to our mind the minds of sages and heroes. Yet the book of nature and of man was open to his view; and some fancy has been indulged in the political and philosophical observations which are

ascribed to the Arabian *traveller*. He compares the nations and the religions of the earth; discovers the weakness of the Persain and Roman monarchies; beholds, with pity and indignation, the degeneracy of the times; and resolves to unite under one God and King the invincible spirit and primitive virtues of the Arab. Our more accurate inquiry will suggest, that instead of visiting the courts, the camps, the temples of the East, the two journeys of Mahomet into Syria were confined to the fairs of Bostra and Damascus; that he was only thirteen years of age when he accompanied the caravan of his uncle, and that his duty compelled him to return as soon as he had disposed of the merchandise of Cadijah. In these hasty and superficial excursions the eye of genius might discern some objects invisible to his grosser companions; some seeds of knowledge might be cast upon a fruitful soil; but his ignorance of the Syriac language must have checked his curiosity; and I cannot perceive in the life or writings of Mahomet that his prospect was far extended beyond the limits of the Arabian world. From every region of that solitary world the pilgrims of Mecca were annually assembled by the calls of devotion and commerce; in the free concourse of multitudes, a simple citizen in his native tongue might study the political state and character of the tribes, the theory and practice of the Jews and Christians. Some useful strangers might be tempted, or forced, to implore the rights of hospitality; and the enemies of Mahomet have named the Jew, the Persian, and the Syrian monk, whom they accuse of lending their secret aid to the composition of the Koran. Conversation enriches the understanding, but solitude is the school of genius; and the uniformity of a work denotes the hand of a single artist. From his earliest youth Mahomet was addicted to religious contemplation; each year, during the month of Ramadan, he withdrew from the world, and from the arms of Cadijah; in the cave of Hara, three miles from Mecca, he consulted the spirit of fraud or enthusiasm, whose abode is not in the heavens, but in the mind of the prophet. The faith which, under the name of *Islam*, he preached to his family and nation is compounded of an eternal truth and a necessary fiction, THAT THERE IS ONLY ONE GOD, AND THAT MAHOMET IS THE APOSTLE OF GOD.—*Gibbon.*

* * * * * *

MAHOMET was in his fortieth year when, having withdrawn to a cavern in Mount Hara, near Mecca, during this Ramadhan, to pass the month in prayer, and meditation on those great

questions, he one day told his wife Kadijah, who with his household was with him or near him this year, that by the unspeakable special favour of Heaven, he had now found it all out: was in doubt and darkness no longer, but saw it all. That all these idols and formulas were nothing—miserable bits of wood; that there was one God in and over all; and we must leave all idols and look to Him. That God is great; and that there is nothing else great! He is the Reality. Wooden idols are not real; He is real. He made us at first; sustains us yet; we and all things are but the shadow of Him; a transitory garment veiling the eternal splendour. "*Allah akbar*, God is great;" and then also "Islam," that we must *submit* to God. That our whole strength lies in resigned submission to Him, whatsoever he do to us. For this world and for the other!

* * * * * *

Such light had come, as it could, to illuminate the darkness of this wild Arab soul. A confused dazzling splendour as of life and heaven, in the great darkness which threatened to be death; he called it revelation and the angel Gabriel;—who of us yet can know what to call it? It is the "inspiration of the Almighty" that giveth us understanding. To *know*, to get into the truth of anything, is ever a mystic act,—of which the best logics can but babble on the surface. "Is not Belief the true god-announcing miracle?" says Novalis. That Mahomet's whole soul, set in flame with this grand truth vouchsafed to him, should feel as if it were important, and the only important thing, was very natural. That Providence had unspeakably honoured *him* by revealing it, saving him from death and darkness; that he therefore was bound to make known the same to all creatures: this is what was meant by "Mahomet is the Prophet of God:" this too is not without its true meaning.—*Carlyle.*

NOTES.—*Noblest race.* — The tribe of Koreish. *Mahomet.* — Born, A.D. 570; died, 632, aged sixty-two. *Abdallah.*—Mahomet's father, died in his son's infancy. His uncle, Abou Taleb, who brought the boy up, employed him in conducting his caravans from Mecca to Damascus, at which he continued till he was twenty-five. *Persian and Roman monarchies.*—The former sinking under the attacks of the Turks and Romans, who themselves were sinking under those of the Northern Barbarians. The capital of the Roman empire was then Constantinople. *Bostra* or *Bosrah.* —A city of Palestine, south of the Dead Sea, now, for ages, deserted and ruined. *Damascus.*—A Syrian city, on the eastern spurs of Lebanon. Older than the days of Abraham, and still a city of from 80,000 to 100,000 inhabitants. *Cadijah.*—A rich widow of Mecca, whom Mahomet afterwards married. *Secret aid.* — The Korân, or Bible, of Mahomet has been said to have been written by him by the aid of the Bible, and Jewish ideas, of ideas borrowed from the Persian religion of Zoroaster, of ideas of Christian sects and heretics, and of the enthusiastic monks with whom Syria then abounded.

Ramadan, the hot month.—The ninth month of the Mahomedan year; corresponds to our Lent. Mahomet was said to have received his first revelation in it, and, hence, his followers fast all through it during the day. *Novalis.*—A celebrated German poet and philosophic writer. His real name was Frederic Von Hardenberg. He was born in 1772, and died at the age of twenty-nine, in 1801.

Rouen.

THE DEATH OF THE CONQUEROR.—*C. Knight.*

Charles Knight was the son of a bookseller, in Windsor, where he was born, in 1791. He rose to be a leader in the promotion of cheap, but good literature, so that his name as a publisher marks an era in the spread of education. He was also an admirable writer. His best known labours as an author are his "Pictorial Shakspere," and his "Popular History of England." The following is taken from the *Penny Magazine.* He died in 1873.

At the end of the year 1086, when he had been seated nineteen years upon the throne of England, William went over to the

Continent with a mighty army, to wage war with Philip, king of France, for the possession of the city of Mantes. It was soon taken, and consigned to the flames. As the conqueror rode up to view the ruin he had caused, his war-horse put his fore feet on some embers, and then plunged so violently, that the king was thrown upon the high pommel of the saddle, and bruised. He dismounted in great pain, and never more put foot in stirrup. Forthwith quitting the burning town, he was carried slowly in a litter to Rouen, and at once laid in his bed. It was soon evident to all, and even to himself, that his last hour was approaching. Being troubled by the noise and bustle of Rouen, and desirous of dying in a holy place, he made his people carry him to the monastery of St. Gervas, outside the city walls.

He lingered for six weeks, during which he was surrounded by doctors, priests, and monks. On the nearer approach of death his heart softened, and though he preserved the kingly decorum, and conversed calmly on the wonderful events of his life, he is said to have felt the vanity of all human grandeur, and a keen remorse for the crimes and cruelties he had committed. He sent money to Mantes to rebuild the churches and houses of religion he had burned, and he ordered large sums to be paid to the churches and monasteries in England which he had plundered and impoverished. He released all his state prisoners, as well Saxons as others, some of whom had pined in dungeons for more than twenty years. Robert, his eldest son, who had had many violent quarrels with his father, was absent, but his two younger sons, William and Henry, who were successively kings of England, were assiduous round the death-bed, waiting impatiently for the declaration of his last will.

A day or two before his death the conqueror assembled some of his prelates and chief barons in his sick chamber, and raising himself in his bed, he, with a solemn and ghastly countenance, declared in their presence that he bequeathed the duchy of Normandy and its other dependencies to his eldest son Robert. "As to the crown of England," said the dying monarch, "I bequeath it to no one, as I did not receive it, like the duchy of Normandy, in inheritance from my father, but acquired it by conquest and the shedding of blood with mine own good sword. The succession to that kingdom I therefore leave to the decision of God, only desiring most fervently that my son William, who hath ever been dutiful to

me, may obtain it, and prosper in it." "And what do you give unto me, oh! my father?" eagerly cried Prince Henry. "Five thousand pounds weight of silver out of my treasury." "But what can I do with five thousand pounds of silver if I have neither lands nor a home?" Here the dying king put on the look of a prophet, and said, "Be patient, oh Henry! and have trust in the Lord. Suffer thy elder brothers to precede, and thy time will come after theirs." Henry the Beauclerc, and the craftiest and cleverest of the unloving brotherhood, went straight and drew the silver, which he weighed with great care, and then furnished himself with a strong coffer to keep his treasure in. William Rufus left the king's bedside at the same time, and, without waiting to see his father breathe his last, hastened over to England to seize the royal treasures deposited in Winchester Castle, and to look after his crown.

About sunrise, on the 9th of September, the conqueror was roused from a stupor into which he had fallen, by the sound of bells. He eagerly inquired what the noise meant, and was told that they were ringing the hour of prime in the church of St. Mary. He lifted his clasped hands to heaven, and saying, "I recommend my soul to my Lady Mary, the holy mother of God," instantly expired. His last faint sigh was the signal for a general flight and scramble. The knights, priests, and doctors, who had passed the night near him, put on their spurs, mounted their horses, and galloped off to their several homes to have an eye to their own interests. The king's servants and some vassals of inferior rank proceeded to rifle the apartments of the arms, silver vessels, linen, and royal dresses, and then mounted, and rode away like their betters. Some took one thing, some another; nothing worth the carrying was left behind—no, not so much as the bed-clothes. For about three hours the corpse of the mighty conqueror, abandoned by sons, friends, servants and all, lay in a state of almost perfect nakedness on the bare boards of the chamber in which he had expired. The citizens of Rouen either ran about the streets asking news and advice from every one they met, or busied themselves in concealing their money and valuables. At last the clergy and the monks recovered the use of their faculties, and thought of the decent duties owing to the mortal remains of their sovereign; and arraying themselves in their best habits, and forming in order of procession, they went with crucifix, burning tapers, and incense, to pray over the abandoned and dishonoured body, for the peace of the soul. The Archbishop

of Rouen ordained that the king should be interred at Caen, in the church of St. Stephen, which he had built, and royally endowed. But even now there was no one to do the last honours: his sons, his brothers, his relations, were all absent, and of all the conqueror's officers and rich vassals, not one was found to take charge of the obsequies. At length a poor knight, named Herluin, who lived in the neighbourhood, charged himself with the trouble and expense of the funeral "out of his natural good nature and love of God." This poor and pious knight, engaging the proper attendance and a waggon, conveyed the king's body to the banks of the Seine, and thence to the city of Caen.

NOTES.—1086.—In the twentieth year after the battle of Hastings. William was now fifty-nine years old (born, 1027). *Philip.*—"The Fair," died 1108. *Mantes.*—A town on the Seine, thirty miles from Paris. *Rouen.*—Then the capital of Normandy, on the Seine, sixty-eight miles from Paris. Population now 101,000. *Robert.*—Fought with his father for Normandy; got it at William's death; was driven out in 1105 by Henry, his brother, then King of England, who took him prisoner, and confined him for twenty-eight years in Cardiff Castle, Wales, till he died, in 1135. *William.*—William II., Rufus (the *Red*), born 1056; killed by an arrow while hunting in the New Forest, Hampshire, 1100. *Henry.*—(I.), called Beauclerk (the good scholar), born, 1068; died, 1135, the same year as his prisoner and brother, Robert. *Winchester Castle.*—Winchester was then a royal city. *Prime.*—A Roman Catholic word for the time of early morning prayers. *Caen.*—A town of Normandy, ten miles from the English Channel. Population now 50,000.

COMPOSITION.—Put pronouns in the place of nouns repeated in the following:—Hunt knew a great many books, and you could not visit Hunt's house without finding Hunt with a book in Hunt's hand, unless Hunt was writing. Hunt depended on the London Library, for Hunt's own collection was not large, but most of Hunt's books were sterling.

TO THE NIGHT.—*Shelley.*

Percy Bysshe Shelley, an English poet, of great genius, was born in 1792. He was the son of Sir Timothy Shelley. Of a dreamy, mystical nature, living in an ideal world, he early caught the infection of French opinions then much in vogue, and drew great dislike on himself and much harsh treatment by his avowal of them. He was a man of very pure life and loving nature, and had he lived would, in all probability, have risen above his early strange opinions. But he was drowned in his thirtieth year, off Italy, in 1822.

SWIFTLY walk over the western wave,
Spirit of night!
Out of the misty eastern cave,
Where all the long and lone daylight
Thou wovest dreams of joy and fear,
Which make thee terrible and dear,—
Swift be thy flight!

Wrap thy form in a mantle gray
Star-inwrought!
Blind with thine hair the eyes of day,
Kiss her until she be wearied out,
Then wander o'er city, and sea, and land,
Touching all with thine opiate wand—
Come, long sought!

When I arose and saw the dawn,
I sigh'd for thee;
When light rode high, and the dew was gone,
And noon lay heavy on flower and tree,
And the weary Day turn'd to his rest
Lingering like an unloved guest,
I sigh'd for thee.

Thy brother Death came, and cried
"Wouldst thou me?"
My sweet child Sleep, the filmy-eyed,
Murmur'd like a noon-tide bee,
"Shall I nestle by thy side?
Wouldst thou me?" and I replied
"No, not thee!"

"Death will come when thou art dead,
Soon, too soon—
Sleep will come when thou art fled;
Of neither would I ask the boon
I ask of thee, beloved Night—
Swift be thy approaching flight,
Come soon, soon!"

ZINGIS AND TIMOUR.—*John Henry Newman.*
(1163—1227, and 1335—1405.)

Dr. Newman, an eminent writer on theology, general literature, and history, was born in London, in 1805. At Oxford he led the rising "Tractarian" movement. In 1845 he entered the Roman Catholic Church.

THESE two extraordinary men rivalled or exceeded Attila in their wholesale barbarities. Attila vaunted that the grass never grew again after his horse's hoof; so it was the boast of Zingis, that when he destroyed a city, he did it so completely that his horse could gallop across its site without stumbling.

He depopulated the whole country from the Danube to the Baltic in a season; and the ruins of cities and churches were strewed with the bones of the inhabitants. He allured the fugitives from the woods, where they lay hid, under a promise of pardon and peace; he made them gather in the harvest and the vintage, and then he put them to death. At Gran, in Hungary, he had three hundred noble ladies slaughtered in his presence. But these were slight excesses compared with other of his acts. When he had subdued the northern part of China, he proposed, not in the heat of victory, but deliberately in council, to exterminate all its inhabitants, and to turn it into a cattle-walk; from this project indeed he was diverted, but a similar process was his rule with the cities he conquered. Let it be understood, he came down upon cities living in peace and prosperity, as the cities of England now, which had done him no harm, which had not resisted him, which submitted to him at discretion on his summons. What was his treatment of such? He ordered out the whole population on some adjacent plain; then he proceeded to sack their city. Next he divided them into three parts: first, the soldiers and others capable of bearing arms; these he either enlisted into his armies, or slaughtered on the spot. The second class consisted of the rich, the women, and the artisans; these he divided amongst his followers. The remainder, the old, infirm, and poor, he suffered to return to their rifled city. Such was his ordinary course; but when anything occurred to provoke him, the most savage excesses followed. The slightest offence, or appearance of offence, on the part of an individual, sufficed for the massacre of whole populations. The three great capitals of Khorasan were destroyed by his orders, and a reckoning made of the slain: at Maru were killed 1,300,000; at Herat, 1,600,000; and at Neisabour, 1,747,000; making a total of 4,647,000 deaths. Say these numbers are exaggerated fourfold or tenfold; even on the last supposition you will have a massacre of towards half a million of helpless beings. After recounting such preternatural crimes, it is little to add that his devastation of the fine countries between the Caspian and the Indus, a tract of many hundred miles, was so complete, that six centuries have been unable to repair the ravages of four years.

Timour equalled Zingis, if he could not surpass him, in barbarity. At Delhi, the capital of his future dynasty, he massacred 100,000 prisoners, because some of them were seen

to smile when the army of their countrymen came in sight. He laid a tax of the following sort on the people of Ispahan, viz., to find him 70,000 human skulls to build his towers with; and, after Bagdad had revolted, he exacted of the inhabitants as many as 90,000. He burned, or sacked, or razed to the ground, the cities of Astrachan, Carisme, Delhi, Ispahan, Bagdad, Aleppo, Damascus, Brousa, Smyrna, and a thousand others. We seem to be reading of some antediluvian giant, rather than of a mediæval conqueror.

NOTES.—*Attila*, King of the Huns, a branch of the Mongol Tartars. Along with his brother, whom he afterwards murdered, he began his reign in A.D. 433. His rule extended from the frontier of Gaul to that of China, over all the northern nations. In 445—450 he ravaged the countries between the Black Sea and the Adriatic, and spent the remaining years of his life (450—453) in desolating Western Europe. He was defeated at the great battle of Chalons-on-the-Marne, in Gaul. From 250,000 to 300,000 men fell in this awful struggle, but it saved the civilization of Europe. Attila died (A.D. 453) of the bursting of a blood-vessel on the night of his last marriage. His vast empire broke up at his death. *Zingis, or Genghis Khan.*—The son of a petty Tartar chief of Central Asia. In 1205 he invaded China, and from that time to his death, in 1227, roamed with his armies, conquering and desolating Northern China, Persia, and Tartary. He is computed to have destroyed upwards of 5,000,000 men in these awful wars. It was the son of Genghis Khan, *Batu*, and his grandson, by whom Poland, Hungary, and great part of Germany, were desolated. *Khorasan.*—A province of Persia. *Maru, Herat and Neisabour.*—Were the three capitals of Khorasan. *Caspian* (Sea).—North of Persia. *Indus.*—The great river which flows along the western side of Upper India, forming its boundary, and falling into the Arabian Sea. *Timour.*—A Mongol Tartar, like Zingis, called Timur lang or Tamerlane, that is Timour the *Lame*. He was a successor of Zingis, whose kingdom, which had fallen to pieces, he determined to restore. *Delhi.*—An Indian city, the capital of the Mongol dynasty of Indian emperors, which Timour founded and which reigned over *all* India from 1519 till the close of the last century; nominally, indeed, till after the Indian mutiny, in 1857. *Astrachan.*—A city, now in Russia in Asia, on the Volga, fifty miles north of the Caspian Sea. *Carisme.*—Capital of a province lying south of the Sea of Aral. *Ispahan.*—Formerly the capital of Persia, south of the Caspian. *Bagdad.*—On the Tigris, capital of the Empire of the Caliphs. *Aleppo.*—A city of Syria. *Damascus.*—Ditto, ditto. *Brousa.*—A city of Asia Minor, sixty miles from Constantinople. *Smyrna.*—A city of Asia Minor, on the Gulf of Smyrna. It has a great trade in silks, carpets, fruit, &c. Population, 160,000.

COMPOSITION.—Write out a list of the verbs in the first paragraph, with as many synonyms of each as you can give.

HENRY VIII.—*J. L. Sanford.*

An historical writer of great merit. His "History of Henry VIII.'s Time," has been very recently published.

THE basis of the character of Henry is his powerful and healthy physique. From this sprang his vigour of mind: from this to a great extent was drawn his moral nature, and by a reference to this his excellences and deficiencies, both mental and moral, can be best explained. With Henry VII. the case

had been different; the basis of his character was intellectual, and his frail bodily constitution only modified and hampered a powerful intellectual organisation. But the younger Henry felt, thought, and acted, as a strong and healthy, a consciously strong and healthy, and, therefore, a self-confident and self-reliant, man would naturally do. He had the magnanimity as

Henry VIII. on his way to meet Francis I. (1520.)

well as the pride, the self-respect as well as the vanity and ostentation, of a magnificent bodily organisation. His acts and thoughts, both good and evil, seemed to possess a certain robustness, and his intellectual and moral perceptions to have something physical and bodily in their composition. The weaker and thinner fibres of human nature seemed to be strengthened and widened in him by this physical inter-

mixture, while the firmer and broader were coarsened. Thus, while his character escaped from the smallnesses and mistrust of a feebler organisation, it failed in delicacy and considerateness. In the youth and prime of his life, when health was strong and every wish appeared to be within his reach, the higher and nobler features of such a character predominated, and his truly royal presence represented a truly kingly character. Hardly anyone who has read the various accounts of his personal appearance can fail to recognise a strong family resemblance in the general portrait to his grandfather, Edward IV. There are the same personal vanity and love of display, redeemed from trivial foppery by dignity of carriage and the stateliness of a representative character as head of the State. There was also in Henry much of the sociable disposition, and preference for popular tastes and for miscellaneous intercourse with all classes, which made Edward so attractive personally to the middle classes of England. But the temperament of Henry was not indolent, like that of his grandfather, and the more habitual activity and impetuosity of his spirit gave his manners a more boisterous and bluff character in his familiar relations than was consistent with the gay courtliness of Edward. From the same cause he was more frank and generous in his disposition than the latter; but far less consistent and much more intermittent in his governing impulses.

COMPOSITION.—Write out a list of the adjectives in this extract, and give as many synonyms as you can of each.

MASSACRE OF GLENCOE (1692).—*Macaulay.**

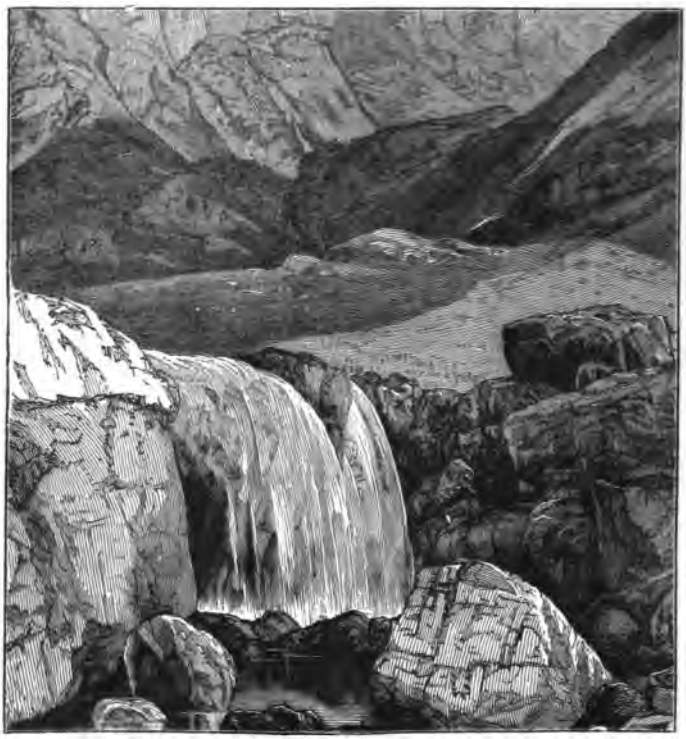
THE authorities at Edinburgh put forth a proclamation exhorting the Highland clans to submit to King William and Queen Mary, and offering pardon to every rebel who, on or before the 31st of December, 1691, should swear to live peaceably under the new Government. It was announced that those who should hold out after that day would be treated as enemies and traitors.

The 31st of December arrived; and still the Macdonalds of Glencoe had not come in. The punctilious pride of Mac Ian was doubtless gratified by the thought that he had continued to

* See "Fifth Reader," p. 163.

defy the Government after the boastful Glengarry, the ferocious Keppoch, the magnanimous Lochiel had yielded: but he bought his gratification too dear.

The news that Mac Ian had not submitted within the prescribed time was received with cruel joy by three powerful Scotchmen, who were then at the English court. To Argyle,



Glencoe.

as to his cousin Breadalbane, the intelligence that the tribe of Glencoe was out of the protection of the law was most gratifying; and the Secretary, the Master of Stair, more than sympathised with them both. The feeling of Argyle and Breadalbane is perfectly intelligible. They were the heads of a great clan; and they had an opportunity of destroying a neigh-

bouring clan with which they were at deadly feud. Breadalbane had received peculiar provocation. His estate had been repeatedly devastated; and he had just been thwarted in a negotiation of high amount. The Master of Stair hated the Highlanders, not as enemies of this or that dynasty, but as enemies of law, of industry, and of trade. To the last moment he continued to flatter himself that the rebels would be obstinate, and would thus furnish him with a plea for accomplishing that great social revolution on which his heart was set. One clan was now at the mercy of the Government, and that clan the most lawless of all. One terrible and memorable example might be given. "Better," he wrote, "not meddle with them, than meddle to no purpose. When the thing is resolved, let it be secret and sudden." He was obeyed; and it was determined that the Glencoe men should perish, not by military execution, but by the most dastardly and perfidious form of assassination.

On the 1st of February, a hundred and twenty soldiers of Argyle's regiment, commanded by a captain named Campbell, and a lieutenant named Lindsay, marched to Glencoe. Captain Campbell was commonly called in Scotland, Glenlyon, from the pass in which his property lay. He had every qualification for the service on which he was employed—an unblushing forehead, a smooth lying tongue, and a heart of adamant. He was also one of the few Campbells who were likely to be trusted and welcomed by the Macdonalds; for his niece was married to Alexander, the second son of Mac Ian.

The sight of the red-coats approaching caused some anxiety among the population of the valley. John, the eldest son of the Chief, came, accompanied by twenty clansmen, to meet the strangers, and asked what this visit meant. Lieutenant Lindsay answered that the soldiers came as friends, and wanted nothing but quarters. They were kindly received, and were lodged under the thatched roofs of the little community. Provisions were liberally supplied. There was no want of beef, which had probably fattened in distant pastures; nor was any payment demanded, for in hospitality, as in thievery, the Gaelic marauders rivalled the Bedouins. During twelve days the soldiers lived familiarly with the people of the glen.

Meanwhile Glenlyon observed with minute attention all the avenues by which, when the signal for the slaughter should be given, the Macdonalds might attempt to escape to the hills; and he reported the result of his observations to his superior,

Hamilton. Hamilton fixed five o'clock in the morning of the 13th of February for the deed. He hoped that before that time he should reach Glencoe with four hundred men, and should have stopped all the earths in which the old fox and his two cubs—so Mac Ian and his sons were nicknamed by the murderers—could take refuge. But at five precisely, whether Hamilton had arrived or not, Glenlyon was to fall on, and to slay every Macdonald under seventy.

The night was rough. Hamilton and his troops made slow progress, and were long after their time. While they were contending with the wind and snow, Glenlyon was supping and playing at cards with those whom he meant to butcher before daybreak. He and Lieutenant Lindsay had engaged themselves to dine with the old Chief on the morrow.

Late in the evening a vague suspicion that some evil was intended crossed the mind of the Chief's eldest son. The soldiers were evidently in a restless state, and some of them uttered strange cries. Two men, it is said, were overheard whispering. "I do not like this job," one of them muttered: "I should be glad to fight the Macdonalds. But to kill men in their beds——" "We must do as we are bid," answered another voice. "If there is anything wrong, our officers must answer for it." John Macdonald was so uneasy, that, soon after midnight, he went to Glenlyon's quarters. Glenlyon and his men were all up, and seemed to be getting their arms ready for action. John, much alarmed, asked what these preparations meant. Glenlyon was profuse of friendly assurances. "Some of Glengarry's people have been harrying the country. We are getting ready to march against them. You are quite safe. Do you think that, if you were in any danger, I should not have given a hint to your brother Sandy and his wife?" John's suspicions were quieted. He returned to his house, and lay down to rest.

It was five in the morning. Hamilton and his men were still some miles off, and the avenues which they were to have secured were open. But the orders which Glenlyon had received were precise; and he began to execute them at the little village where he was himself quartered. His host Inverrigen and nine other Macdonalds were dragged out of their beds, bound hand and foot, and murdered. A boy, twelve years old, clung round the captain's legs, and begged hard for life. He would do anything; he would go anywhere; he would follow Glenlyon round the world. Even Glenlyon, it is

said, showed signs of relenting; but a ruffian, named Drummond, shot the child dead.

Meanwhile Lindsay had knocked at the door of the old Chief, and had asked for admission in friendly language. The door was opened. Mac Ian, while putting on his clothes and calling to his servants to bring some refreshments for his visitors, was shot through the head. His wife was already up, and dressed in such finery as the princesses of the rude Highland glens were accustomed to wear. The assassins pulled off her clothes and trinkets. The rings were not easily taken from her fingers, but a soldier tore them away with his teeth. She died on the following day.

The peal and flash of gun after gun gave notice, from three different parts of the valley at once, that murder was doing. From fifty cottages the half-naked peasantry fled under cover of the night, to the recesses of their pathless glen. Even the sons of Mac Ian, who had been especially marked out for destruction, contrived to escape. They were roused from sleep by faithful servants. John, who by the death of his father, had become the patriarch of the tribe, quitted his dwelling just as twenty soldiers with fixed bayonets marched up to it.

It was broad day long before Hamilton arrived. He found the work not even half performed. About thirty corpses lay wallowing in blood on the dunghills before the doors. One or two women were seen among the number, and a yet more fearful and piteous sight, a little hand, which had been lopped in the tumult of the butchery from some infant. One aged Macdonald was found alive. He was probably too infirm to flee, and, as he was above seventy, was not included in the orders under which Glenlyon had acted. Hamilton murdered the old man in cold blood. The deserted hamlets were then set on fire; and the troops departed, driving away with them many sheep and goats, nine hundred kine, and two hundred of the small shaggy ponies of the Highlands.

It is said, and may but too easily be believed, that the sufferings of the fugitives were terrible. How many old men, how many women with babes in their arms, sank down and slept their last sleep in the snow; how many, having crawled, spent with toil and hunger, into nooks among the precipices, died in those dark holes, and were picked to the bone by the mountain ravens, can never be known. But it is probable that those who perished by cold, weariness, and want, were not less numerous than those who were slain by the assassins.

When the troops had retired, the Macdonalds crept out of the caverns of Glencoe, ventured back to the spot where the huts had formerly stood, collected the scorched corpses from among the smoking ruins, and performed some rude rites of sepulture. The tradition runs that the hereditary bard of the tribe took his seat on a rock which overhung the place of slaughter, and poured forth a long lament over his murdered brethren and his desolate home. Eighty years later that sad dirge was still chanted by the people of the valley.

NOTES. — *The Highland Clans.* — Had been the supporters of James II. *King William.*—Prince of Orange, the representative of Protestantism in Europe. He was the son of William, Prince of Orange, and Mary, daughter of Charles I.; born at the Hague, 1650; died at Kensington, from a fall from his horse, 1702. *Queen Mary,*—daughter of James II. Her mother was Anne Hyde, daughter of the Earl of Clarendon, who wrote "The History of the Rebellion;" born, 1662; died without children, of small-pox, in 1694. *The New Government.*—That of William and Mary, who had succeeded James II., in 1688. *Mac Ian.*—The name by which the chief of the Macdonalds of Glencoe was known. *Glengarry, Keppoch* and *Lochiel.*—Highland chiefs. *Mac Ian had not submitted.*—He had gone to Fort William on the 31st December, the last day allowed, to submit, but there was no magistrate there to whom he could do so. He then hastened, in great terror, to Inverary, and there the sheriff, on the 6th January, received his oath, which was duly forwarded to Edinburgh, but was there suppressed, by a dark intrigue of the Master of Stair, so that it was never made known to the Council in Scotland or to King William. It had, in fact, been determined by Mac Ian's enemies, beforehand, to murder him and all his clan. *Argyle.*—The Earl of, son of the Earl of Argyle, beheaded in 1685, but himself a weak, worthless man. *Breadalbane.*—Earl of, a Highland chief, head of a branch of the Campbells, a treacherous, dark-souled man. *The Master of Stair.*—Secretary for Scotland, eldest son of the Earl of Stair. *Glencoe.*—A mountain valley, or pass, in Argyleshire. *Gaelic.*—Celtic. *Bedouins.*—Arabs. *Hamilton.* A lieutenant-colonel. The massacre of Glencoe is still spoken of with horror in Argyleshire. The Rebellions of 1715 and 1745 were, in part, wild revenge for it.

COMPOSITION.—Write out an abstract of this lesson.

A MAN-OF-WAR OF LAST CENTURY.—*Mrs. Oliphant.*

An admirable writer of the day. She is the authoress of many works of fiction of great merit, and also of "Historical Sketches of the Last Century," from which the following is taken. It refers to the voyage of Lord Anson round the world. He sailed from England on September 18th, 1740, and returned in 1744.

BEFORE this time scurvy, most dreaded of all the dangers of a long sea-voyage, had made its fatal appearance among them. With their feeble old pensioners and rapidly made-up crews, sickness had been rife in the ships from the very beginning of the voyage; and it is evident that Anson's good sense and good feeling had forestalled sanitary science so far as to do all that was possible for the ventilation and cleanliness of his crowded vessels. So early as November the sickly condition of the crews and the want of air between the decks had been

reported to him; and, by the time they arrived at St. Catherine's it was found necessary to give the *Centurion* a "thorough cleansing, smoking it between the decks, and, after all, washing every part well with vinegar,"—a precaution made needful by the "noisome stench" and vermin, which had become "intolerably offensive." During their terrible beatings about Cape

Lord Anson. The Island of Juan Fernandez.

Horn the scurvy took stronger and stronger hold upon them. In April they lost forty-three men from it on board the *Centurion* alone; in May double that number; in June, before they reached Juan Fernandez, "the disease extended itself so prodigiously that, after the loss of about two hundred men, we could not at last muster more than six foremast men in a watch

capable of duty." The officers themselves (and, still more remarkably, the officers' servants) seem to have escaped the attacks of this disease, fortified either by the tremendous burden of responsibility, or by that curious force of high spirit and finer mettle which carries so many absolutely weaker men through the perils which slay the strongest. Our chaplain records the characteristics of the disease with that grave and calm simplicity which distinguishes his style, revealing its full horrors, yet never dwelling unduly on them. Some of its victims, he describes, lay in their hammocks eating and drinking, in cheerful spirits, and with vigorous voices; yet in a moment, if but moved from one place to another, still in their hammocks, died out of hand, all vital energy being gone from them. Some who thought themselves still able for an attempt at duty would fall down and die among their comrades on attempting a stronger pull or more vigorous strain than usual. Every day, while winds and waves, roaring and threatening round, held over the whole shipload another kind of death, must the dim-eyed mariners, with failing strength and sinking spirit, have gathered to the funeral of their dead.

By this time their companion ships had all disappeared, and the *Centurion* alone, with its sick and dying, tossed about almost at the will of the waves, upon that desolate sea. At last there came a moment when, destruction being imminent, "the master and myself," our brave chaplain, undertook the management of the helm, while every available soul on board set to work to repair and set the sails and secure the masts, to take advantage once more, in desperation, of a favourable change of wind. This was their last storm; but not even then were the troubles of this terrible voyage at an end. They missed Juan Fernandez by one of those mistakes which come in with bewildering certainty at such moments of desperation to enhance all sufferings. "The commodore himself was strongly persuaded that he saw it," but overpowered by the scepticism of his officers, changed his course in over-precaution. Then at last the high hearts of the expedition gave way. The water was failing, to add to all the rest; men were dying five and six every day. "A general dejection prevailed among us," says the historian. It was at this moment, when hope and heart were well nigh gone, that the island of their hopes, all smiling in the sullen seas, with soft woods and grassy slopes and sweet streams of running water, suddenly burst like a glimpse of Paradise upon their hungering eyes.

NOTES.—*Before this time.*—Before sighting Brazil. They had been healthy as far as Madeira, but, crossing the Atlantic, all kinds of sea diseases had broken out violently in the ships. *Scurvy.*—A fearful disease, caused solely by the want of fresh vegetables for a length of time. Lemon juice or vegetables wholly prevent it. It is a poisoning of the blood, which swells the gums till the teeth drop out, forms ulcers on the joints and body, and makes old wounds break out afresh, and indeed rots the man away while living. It is now unknown in the navy. *Pensioners, &c.*—The ships had been manned in great part by invalid old soldiers and the like. Two men in every five died in the first two years of the voyage. *November,* —1740. *St. Catherine's.*—An island off the province of Brazil of the same name. *The Centurion.*—Anson's flag-ship. *Cape Horn.* — The south extreme of South America. They rounded The Horn in April, 1741. *Juan Fernandez.*—An island, 500 miles from the coast of Chili, in the Pacific, 25 miles by 4. *Alexander Selkirk.* — From whose story Robinson Crusoe was drawn, lived here alone for four years and four months, returning to England in 1711. *Our Chaplain.*—Richard Walter, M.A., who wrote the account of the voyage. After all, *The Centurion* took Spanish ships and treasure to the value of £1,000,000! Anson was born at Colwich, Staffordshire, 1697, died 1762.

THE BEETLE.—*Thomas Carlyle.*

POOR hobbling Beetle, need'st not haste ;
Should Traveller, Traveller thus alarm ?
Pursue thy journey through the waste,
Not foot of mine shall work thee harm.

Who knows what errand grave thou hast,
'Small family'—that have not dined ?
Lodged under pebble, there they fast,
Till head of house have raised the wind !

Man's bread lies 'mong the feet of men ;
For cark and moil sufficient cause !
Who cannot sow would reap ;—and then
In Beetledom are no Poor-Laws.

And if thy Wife and thou agree
But ill, as like when short of victual,
I swear, the Public Sympathy
Thy fortune meriteth, poor Beetle.

Alas ! and I should do thee skaith,
To realms of Night with heeltap send !
Who judg'd thee worthy pains of death ?—
On Earth, save me, without a Friend !

Pass on, poor Beetle, venerable
Art thou, were wonders ne'er so rife,
Thou hast what Bel to Tower of Babel
Not gave : the chief of wonders,—life.

Also of "ancient family,"
Though small in size, of feature dark !
What Debrett's Peer surpasseth thee ?
Thy Ancestor—was in Noah's Ark.

EDWARD THE CONFESSOR.—*Dean Stanley.*

EIGHT hundred years have passed to-day since the dedication of Westminster Abbey was completed; when, like the Jewish Temple, it was purified, and adorned, and consecrated, in the place of the ruin and desolation which had well nigh swept away the vestiges of older times.

These are the simple words of the Saxon Chronicle which describe this event: "At midwinter King Edward came to Westminster, and had the minster there consecrated, which he had himself built to the honour of God and St. Peter, and all God's saints." It was at Christmas-time, when, as usual in that age, the Court assembled in the adjoining palace of Westminster, that the long-desired dedication was to be accomplished. The king had been for years possessed with the thought. Like David, he "could not suffer his eyes to sleep, nor the temples of his head to take any rest, until he had found out a place" for the great sanctuary which was henceforth to be the centre of his kingdom.

On Christmas-day, according to custom, he appeared in state wearing his royal crown; but on Christmas-night his strength, prematurely exhausted, gave way. The mortal illness, long expected, set in. He struggled through the next three days, and though, when the festival of the Holy Innocents arrived, he was already too weak to take any active part in the ceremony, yet he aroused himself on that day, to sign the charter of the foundation; and at his orders the queen, with all the magnates of the kingdom, gathered within the walls, now venerable from age, then fresh from the workman's tools, to give to them the first consecration—the first which, according to the belief of that time, the spot had ever received from mortal hands. By that effort the enfeebled frame and overstrained spirit of the king was worn out. On the evening of Innocents'-Day he sank into a deadly stupor. The sudden and startling rally took place on the eighth day of his illness, on the 5th of January. The recollections of the teachers of his youth, the dim forebodings of approaching disaster and change, found vent in a few strange, hardly coherent sentences that burst from his lips. Then followed a calm, during which, with words, very variously reported, respecting the queen, the succession, and the hope that he was passing "from a land of death to a land of life,"—in the chamber which long afterwards

bore his name in the Palace of Westminster,—he breathed his last. A horror, it is described, as of great darkness, filled the whole island. With him it seemed as if the happiness, the liberty, the strength of the English People had vanished away.

Westminster Abbey.

So dark were the forebodings, so urgent the dangers which appeared to press, that on the very next day, while Duke Harold was crowned in the old Cathedral of St. Paul's, the dead king was buried within the newly-finished Abbey—the first

of the hundreds who have been since laid there round his own honoured grave.

Let us see exactly what the character of Edward the Confessor was. On the one hand, if we look at the details of his history, it is hardly possible to imagine a figure more unlike, more incongruous to our own time than was this quaint, irresolute, guileless king, who alone, of all the canonized English saints, rests undisturbed in his ancient shrine. We know him well, as he is described to us by his contemporaries. We see that grave, gentle figure, old even as a child, moving slowly along with downcast eyes. We recognise him at a distance by the singular appearance of his full, flushed, rose-red face, contrasted with the milky whiteness of his wavy hair and beard. As we draw nearer, we hear those startling peals of strange unearthly laughter, which broke through his usual silence. We see those thin pale hands, those long transparent fingers, with which, as it was believed at the time, and for many generations afterwards, he had the power of stroking away the diseases of his subjects. We are astonished, as we look into his outer manner of life, at finding a prince whose time is equally divided between devotional exercises and the passionate pursuit of hunting—when not in church, spending day after day with his hawks, or cheering on his hounds. We find, as we penetrate into his inner life, a childishness of thought and action, which at times turned into a harsh disregard of those to whom he was most nearly bound, and at times into the most fanciful extravagances. His opinions, his practices, his prevailing motives, are such as in our own times, not only not in England, but in no part of Christian Europe, would be shared by any educated teacher or any educated ruler. But, through, and across, and in spite of these immeasurable divergences, we yet can recognise an innocent, child-like faith, which was the secret cause of the charm exercised by him over his countrymen then, and which may flourish still in our altered age, and has always an appointed place in the economy of God's ever-moving world. It is to his faith in the unseen world, amidst whatever ignorance and darkness, that we owe this complex structure. He spoke the word, and it was transformed into stone; and even in some of its most peculiar features, the institution still perpetuates the thought of its first founder: "Through faith," we may well say, "he has stopped the mouth of Time, quenched the violence of enemies, escaped the edge of the sword, out of weakness been made strong."

NOTES.—*Westminster Abbey* was consecrated on Innocents' Day, 28th Dec., 1065. Edward died on the eighth day after, January 5th, 1066. *Jewish Temple was Purified, &c.*—The purification of the Temple at Jerusalem under Judas Maccabæus, B.C. 164, after it had been profaned by Antiochus IV. (Epiphanes, *The Illustrious*), King of Syria. He had offered swine (!) on its altars, put a stop to the daily sacrifice, extinguished the lamp in the Temple, and the three fires that burned day and night on the altar. The Feast of Dedication (John x. 22) commemorates this great event in Jewish history. It is still observed, and lasts eight days, from the 25th day of the eighth month. *Saxon Chronicle.*—A national record of events, probably begun by King Alfred, but continued from year to year till the time of the Norman Conquest and for three generations after it. It was the great year-book of the nation, and is now known as The Anglo-Saxon Chronicle. Its last record is of the Accession of Henry II. in 1154. Alfred was born 849, died 900. *Duke Harold.*—Duke was a Norman, not an English title, and has here been given by a slip of the pen. Harold was an *Earl* not a *Duke*. He was the son of Earl Godwyne, and had been the real King of England under the monastic Edward. He was *chosen* King at Edward's death, by the Witan, or Council of Wise Men, of England, but reigned only a few months, falling at the great battle of Hastings, Oct. 14, 1066. *Innocents' Day.*—The day in the ecclesiastical calendar commemorating Herod's slaughter of the children at Bethlehem. *St. Paul's.*—Begun in 603. Partly burned in 962. Rebuilt in 1087. Burned 1666. Rebuilt in 1675-1710 by Sir Christopher Wren (1632—1723).

Stroking away Diseases.—The practice of the reigning prince touching the scrofulous, to cure them, began with Edward the Confessor, and continued for nearly seven hundred years. It ceased with Queen Anne's death in 1714. Dr. Johnson remembered having been "touched" by her. In France the superstition continued in force till 1776. Charles II. in twenty years "touched" 92,007 persons for the "king's evil"—the name given to scrofula, from this custom. Cromwell "touched" for it. Francis I., after the battle of Pavia, when a prisoner in Madrid, "touched" a great number; and on one day, Easter Sunday, 1686, Louis XIV. "touched" no fewer than 1,600 persons. A belief in some mysterious sanctity being connected with an anointed king was, no doubt, the source of this strange credulity.

TO SLEEP.—*Wordsworth.*

A FLOCK of sheep that leisurely pass by
One after one; the sound of rain, and bees
Murmuring; the fall of rivers, winds, and seas,
Smooth fields, white sheets of water, and pure sky;—
I've thought of all by turns, and still I lie
Sleepless, and soon the small birds' melodies
Must hear, first uttered from my orchard trees,
And the first cuckoo's melancholy cry.

Even thus last night and two nights more I lay,
And could not win thee, Sleep! by any stealth:
So do not let me wear to-night away:
Without Thee, what is all the morning's wealth?
Come, blessed barrier between day and day,
Dear mother of fresh thoughts and joyous health!

LESSONS ON SPECIFIC SUBJECTS.*

PHYSICS.—MECHANICS.

THE MECHANICAL POWERS.

1. The name of MECHANICAL POWERS is given to the simple elements which when put together make machinery. They are the separate principles or applications of mechanical power of which all machines are only varied combinations. They are six in number—three being called PRIMARY, from their not being modifications of any others, and three SECONDARY, from their being modifications of the three PRIMARY powers. The two classes are—

PRIMARY.	SECONDARY.
1. The LEVER.	2. The Wheel and Axle, which are modifications of the lever.
3. The PULLEY.	5. The Wedge, which is a modification of the inclined plane.
4. The INCLINED PLANE.	6. The Screw, which also is a modification of the inclined plane.

2. The LEVER. The word Lever is simply the French verb *lever*, to lift, used as an English noun, and is the name given to a mechanical power employed to aid in lifting heavy weights, or in overcoming resistance. Levers may be *straight* or *bent*, *simple* or *compound*, but it is with the straight or simple lever we have here to do.

In examining the properties of this mechanical power, it simplifies matters to leave out of notice the weight of the lever itself, and to think of it also as absolutely rigid, that is, as incapable of being bent. The weight and the extent of flexibility all levers must have, would only confuse the mind in this inquiry, by the allowances that would need to be made for them.

3. It is of course necessary, to enable us to make use of a lever, that it have a fixed point on which it turns, and this is called the *fulcrum*† or prop. When a labourer wishes to force a large stone out of its bed by the help of a crowbar, and puts something below the crowbar to give him what he calls "purchase," the body he thus puts below it is a fulcrum. The crowbar, which is a lever, is thus provided with a *prop*, and that prop is the *fixed point* on which the crowbar turns, when the stone is forced up.

4. There are three kinds of straight or simple lever, their differences

* These Lessons, besides being closely studied in detail, should be used as **Reading Lessons.** The subjects are those appointed by Government for the Sixth Standard.
† From Latin *fulcio*, to prop.

consisting in the position of the *moving* power and of the *resisting* power, with respect to the fulcrum.

(1.) The first kind of lever is very common. *It includes all levers in which the fulcrum comes between the moving power and the weight to be moved.* When a labourer lifts a heavy block of stone by the help of a crowbar, or when you stir up the fire with a poker, or dig the soil with a spade, the crowbar, the poker, and the spade, are really levers of this kind. The prop put below the crowbar is its fulcrum, as explained above, the fulcrum of the poker is the bar of the grate on which the poker presses when you force up the coals with it, and the edge of the soil at the back of the spade, when you pull the handle towards you to loosen the spadeful you wish to lift, is the fulcrum by which the lever of the spade handle acts. Fig. 1 is an illustration of this form of lever.

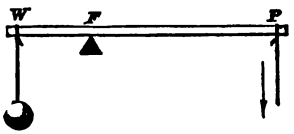


Fig. 1.

W is a weight at one end; F is the fulcrum or prop; and P is the moving power by which the weight at W is to be raised. The arrow shows the direction in which the moving power is to be used.

Familiar illustrations of this first kind of lever are also seen in many of our common instruments; common pincers, for example, or scissors, are merely two levers with the hinge or pin which holds them together acting as the fulcrum of both. The resistance is in the objects put between the nippers or blades; and the power by which it is overcome is applied at the handles.

The common balance, in all its forms, is also an illustration of this kind of lever. Here, for instance, (Fig. 2) is a weighing machine called the steel-yard, which was the form of balance used long ago by the Romans. It is still sometimes used amongst ourselves.

The machine used on railways and in coal-yards is not manufactured in quite the same form, but the principle is just the same.

W is the scale into which the weight to be moved, or balanced, is put; S is simply a hook by which it is attached to the lever; C is a sharp-edged pivot or fulcrum on which the beam of iron used to weigh with is balanced; and P is a weight which is moved nearer or farther away from the fulcrum, as the thing weighed is lighter or heavier.

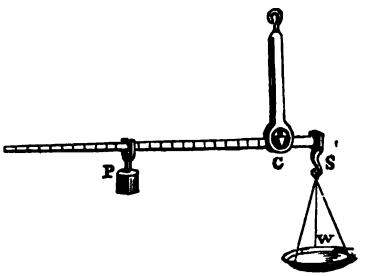


Fig. 2.

The distance which the weight P has to be moved from the fulcrum,

to balance the weight in the scale, is fixed by an unvarying rule. If the distance of the hook from which the scale hangs be one inch from the fulcrum, and the weight in the scale be 6 lbs. it will be balanced by the weight of 1 lb. at 6 inches' distance from the fulcrum, on the other side, or by that of 2 lbs. at 3 inches. The distance of the balancing weight, or, in other words, the power required to be exerted on the lever, may always be found by multiplying the weight used in balancing or weighing by the number of inches or feet, as the case may be, which with this lesser weight will make the same amount as has to be raised.

Thus 1 lb. × 6 inches are equal to the weight in the scale, 6 lbs. and 2 lbs. × 3 inches are, in the same way equal to 6. Thus, also, a 3-lb. weight placed at the distance of 2 inches on the other side of the fulcrum, would balance 6 lbs. in the scale, for 3 × 2 are equal to 6.

The common scales (Fig. 3) are also a lever of the first kind, with the fulcrum between the weight to be raised, and the power used to raise it. This lever is the *beam* A B. C is the fulcrum or pivot of motion, at the centre, so that the two arms A C and C B are equal. But it would not do to have a straight bar only for a balance. The centre of gravity must be so arranged that the beam shall always return to a horizontal position when the two sides balance each other. The centre of gravity in the illustration is *g*, and the point from which the beam is suspended in weighing (*m*) must be perpendicular to this. The *tongue* of the balance is a slender pointed needle rising in the line of *m*, and shows, by resting at the perpendicular, or by moving an equal distance on each side of it, that the two scales are balanced.

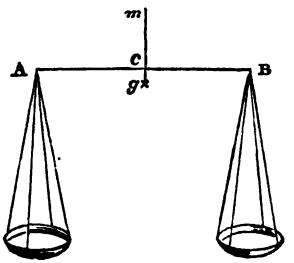


Fig. 3.

Balances for coin or for scientific purposes are made of such extreme sensibility that they turn with the thousandth part of a grain. M. Stas in his researches on the weight of the atoms of some elements used a balance which turned with the ten-millionth part of the weight in each pan! Another balance used by the same philosopher turned with the two-thousandth of a grain.

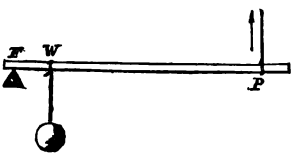


Fig. 4.

(2.) Levers of the *second kind* are also common (Fig. 4). They have the power used to move the weight, P, and the weight itself, W, on the same side of the fulcrum, F. A familiar example is shown in the wood

carver's or carpenter's PARING KNIFE (Fig. 5). The hook at the end is the fulcrum; the wood to be cut, which is placed under the blade, is the resisting substance on which the power of the lever is to be exerted, and the handle is the point at which the workman's hand applies that power.

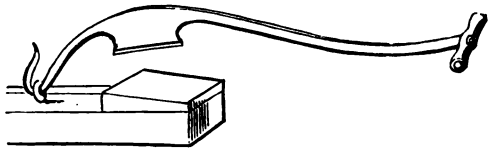


Fig. 5.

A wheelbarrow is another example of this lever. The axle of the wheel is the fulcrum, the load in the body of the barrow is the weight to be moved, and the strength used to wheel it is the power (Fig. 6).

When a man thrusts a handspike or crowbar under a heavy box or block of stone, and *moves it forward*, he uses a lever of the second kind: the fulcrum is the ground, at the point where the handspike or crowbar presses, the box or block is the weight to be moved, and the man's force is the power exerted—the weight and the power that moves it being both on the one side of the fulcrum.

A pair of nutcrackers are an example of a lever of this kind with two arms. The fulcrum is the joint which holds the two arms together, the

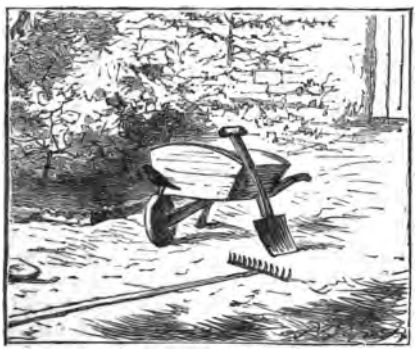


Fig. 6.

nut put between them is the thing to be affected by the levers, and the hand which closes the nutcracker is the power by which the two levers which its arms form, act.

An oar with which a boat is rowed is still another illustration. The hand of the rower is the power, the pin on which the oar turns to propel

the boat is the weight to be moved, and the water against which the oar is pressed is the fulcrum. (Fig. 7.)

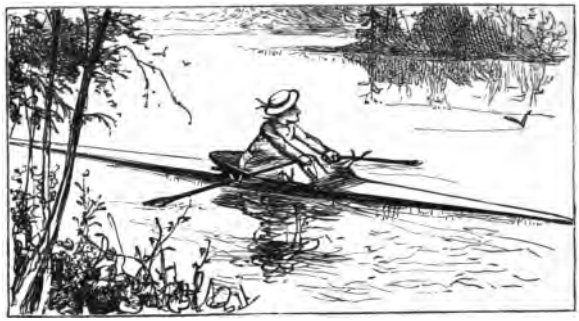


Fig. 7.

When two men carry a load on a pole between them (Fig. 8) it is still another example of this form of lever. The power of each man is used in lifting the weight, but at the same time each man's shoulder is a fulcrum through which the power of the other man acts. While the

Fig. 8.

load is exactly in the middle, each bears just half the weight; but if it slip one way or other, he towards whom it slips, having the shorter end of the pole resting on him, bears a heavier weight than the other man, the pressure on his shoulder, which is the fulcrum, being increased.

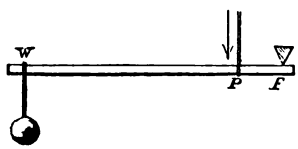


Fig. 9.

(3.) A lever of the *third kind* (Fig. 9) is one in which the power and the weight to be moved both act on the same side of the fulcrum, but the power P is between the fulcrum F and the weight to be moved W.

An angler, when using his fishing-rod, employs it as a lever of this kind. The fish is the weight to be raised, his outer hand is the power, and the hand nearer his body is the fulcrum. (Fig. 10.)

When a gardener lifts earth on a spade this form of lever is illustrated. The weight is of course the earth, the power is the hand on the shank of the spade, and that which holds the handle is the fulcrum.

The foot-board of a turning-lathe is another example. The foot on the ground is the fulcrum, the foot on the foot-board is the power, and the wheel to be set in motion is the weight. The foot-board of a street knife-grinder's grindstone is an illustration of the same principle.

Fig. 10.

5. Common levers are used, for the most part, to raise weights to a small height, and this is done by a succession of efforts, after each of which the lever is applied afresh. But this, of course, involves a great deal of trouble, and hence contrivances have been long since invented by which weights may be lifted with a continuous motion, by an ingenious application of lever power. This application forms THE SECOND MECHANICAL POWER—THE WHEEL AND AXLE.

The simplest form of this improvement is called the *rack and pinion*, and is shown in the cut of the rack-work on a SCREW-JACK in Fig. 11. A screw-jack, I may say, is a contrivance much in use for lifting timber or heavy weights to short heights, and hence all the parts of it are made very strong. They are enclosed in a strong wooden frame, which is not represented here. A B is the rack, which should, however, be at least four times as long in proportion to the wheel. O is the wheel, which should have four times more teeth than in the cut. H P is the handle. The three-leaved wheel in the middle, R, is called the pinion.

6. Now when the handle is turned it moves the large wheel round a proportionately large space, but the *rack* at its centre, being so much smaller, must move round many times for each revolution of the large wheel; and the result is, without troubling you with difficult explanations, that the turning of the handle raises a weight 220 times greater than the power

applied to it by the labourer who turns it; so that if his hands, when thus turning it, exert a force equal to 50 lbs., he is able by this *jack* to sustain a weight of 11,000 lbs., or about 5 tons—that is of 220 times the 50 lbs. of force he is exerting.

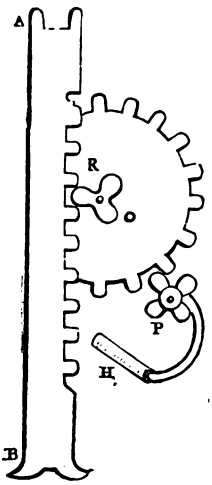


Fig. 11.

The power in this machine is the man's hand at the handle, the fulcrum is the successive teeth against which the power he exerts presses, and the weight is the rack and what may be fixed to it. The screw-jack acts, therefore, as a lever of the first kind.

7. A further advance in the securing a continuous motion by the power of levers is effected very simply. You can see that, if the spaces between the three teeth of the *pinion* were filled up, it would be round, and would thus form a *cylinder* or *barrel* on which a rope might be put so that the weight to be raised might be hung from one end of it. The rope would then take the place of the *rack* A B, and the weight hung to it would be moved in the same way, by power applied to a handle or handles.

Now if such a *cylinder* or *barrel* be placed upright, and the rope wound round it, to be moved by handles placed so as to increase the power on it, you have a ship's *windlass* (Fig. 12). When the sailors wish to heave the anchor, a cable from it is passed round the upright barrel or *spindle* of the windlass, and long handles, called *handspikes*, having been put into the holes in the drumhead D, the sailors force the drumhead round by them, and this turns the spindle and pulls up the weight attached to the rope wound round it. The teeth you see at the bottom of the windlass pass over notches in the frame, so placed that the teeth catch in them the moment the force is withdrawn from the handspikes, and prevent the weight from again rushing to the point from which it has been raised. The power of the windlass is

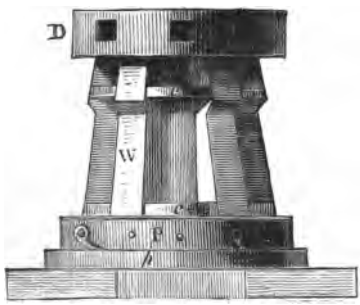


Fig. 12. D the drum-head; W the whelps; C the cheek; P the paul-head; *p* the paul-reins. The cylinder above C is that round which the rope is wound.

increased in proportion to the thinness of the spindle or barrel, or by increasing the length of the winches or handspikes. It works by concentrating on a small space the power of a much wider circle, just as the large wheel on the rack concentrated its force in the smaller circle of the pinion.

8. But, if you think of it for a moment, the spokes or winches by which the windlass is moved are only the *spokes of a wheel*, so that the lever thus passes in a way you can at once understand into that form of mechanical power, which, though it is called the SECOND, is thus really only a variety of the *first*. If you join the different spokes by a rim, the different parts of which form a circle, you have a WHEEL at once.

The advantage of the wheel over the separate spokes or handspikes is, that it can always be turned round continuously by a force acting only on a small part of its circle. This may be done in two different ways. For example, you all know how the man at the wheel steers the ship by turning round a wheel from which handles project at short distances from each other. Formerly the helm used to be turned by a windlass worked by a number of men, but the wheel now enables one man to do the same thing. This is one way of turning a wheel.

But, instead of projecting handles, a wheel may be worked by a rope passed over it, as in the wheel of a clock (Fig. 13). The cut represents what is called a *racket* wheel, from the catch (A) fixed on it, which prevents its

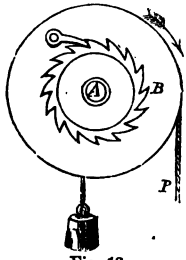


Fig. 13.

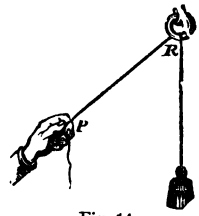


Fig. 14.

turning except in one direction. In that direction, however, the weight fixed to the rope passed over it keeps it steadily turning. You see this principle in the weight of a clock which hangs from a cord wound round a barrel in the works, and turns the whole of the wheels. In the cut, a small weight hung from the end (P) of a cord wound round the wheel (B) steadily pulls up a larger weight (W) wound in a contrary direction round an axle behind.

9. Levers owe much of their power to their not bending, but ropes and cords are valuable because they do bend. This property enables us to use them so that a force acting in any given direction may be made to balance an equal force in any other direction. If, for example, you pass

a rope, at one end of which hangs a heavy weight, through a ring, say in the ceiling, you raise the weight by pulling the rope through the ring, though you do not pull in the opposite direction to that in which the weight acts (Fig. 14). But it is clear that if, instead of a ring, however smooth, you used a wheel with a groove on its outer edge—that is, a *pulley*, instead of a ring—the friction would be much less, and your power consequently much greater.

10. Thus, again, you easily pass to the THIRD MECHANICAL POWER—that of the PULLEY. The PULLEY consists of a small wheel, called a *sheaf*, which turns on a pin or axis in a *block*, and has a cord or rope running in a groove on the outer edge of it. There are two kinds of pulleys, the *movable* and the *fixed*, both of which are represented in Fig. 15. The upper double pulley, which, as you see, is fixed by a hook to a beam, is a *fixed* pulley; the lower one is a *movable* pulley.

The rope by which a window-sash is raised is an illustration of the simplest use of the pulley, and so are the two buckets at the two ends of a well-rope running over a pulley, the one of which rises full as the other descends empty. The weights which lift the window pass over a pulley above the sash to be raised, and hang, unseen, behind the frame in which the sash runs. In order that they may raise the sash, and keep it raised, it is evident that they must, between them, be of equal weight with the sash itself. The pulley acts as a lever with equal arms, so that neither the window-sash nor the weights have any advantage, but balance each other at any height required. The cord, moreover, being free to move either up or down, must have an equal strain on it through its whole length.

But the pulley does not increase the power you exert in raising the window, it only changes the direction in which it acts; yet this is often a great advantage. Fixed pulleys, therefore, do not increase power.

11. With the movable pulley there *is* an apparent increase of power. If a rope fixed from a hook in a beam be passed over the under side of a movable pulley to which a weight is attached, and then passed over the upper side of a pulley fixed to the same beam as the hook, the downward part of the rope between the hook and the movable pulley, and the upward part from that pulley to the one fixed in the beam, must have an equal strain on them, and hence each part clearly sustains *half* the weight. But when a hand pulls the part of the rope hanging down from the pulley fixed to the beam, so as to raise the weight fixed to the movable pulley, it is also clear that the part of the rope pulled has the same strain put on it as the two other parts, and thus the hand pulls down its end with a force equal to only half the weight, and yet this *half* force raises the *whole* weight, so that it is really *doubled*.

The saving of power by the movable pulley, as in this case, lies in the fact that the hook in the beam, to which the rope is attached, bears half the weight.

Yet the doubling the power is only in appearance, for the hand must pull the rope two feet down to raise the weight one foot—that is, it must shorten both the downward and upward part of the rope, to and from the movable pulley, a foot each, and to lift half a given weight two feet needs clearly no less force than to lift the whole weight one foot.

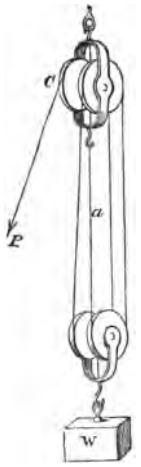


Fig. 15.

By combining pulleys skilfully the most surprising results are obtained in facilitating the raising of heavy weights. Take Figure 15 for an illustration. The power exerted at P is borne by the part of the cord between P and C, but as the tension or strain is everywhere equal, and there are four such parts of the cord between the four pulleys, it follows that a pull equal to 1 lb. at P would balance a weight of 4 lbs. at W. The power is concentrated or increased as many times as there are pulleys employed. An exertion equal to the lifting of 10 lbs. would thus with four pulleys raise a weight of 40 lbs., and if there were six, a force of 10 lbs. would raise 60 lbs.

From this you can easily see how combinations of pulleys might be made by which a child's strength could be easily able to raise a weight too heavy, without such help, for a man to move.

12. The Fourth Mechanical Power is the Inclined Plane. (Fig. 16.)

Every one knows how much easier it is to roll a heavy cask up a slope than to lift it perpendicularly to the same height at once. The greater ease in the case of the slope is an illustration of the benefit derived from the inclined plane as a mechanical power, for a slope and an inclined plane are different names for the same thing.

To explain the principles on which the advantage of the inclined plane rests in a simple way is not very easy, but a little thought will surmount any difficulty.

The line A C is called the *length* of the inclined plane, B C its *height*, and A B its *base*. If a heavy body (G) be placed on it, there will be a pressure through its centre of gravity G in the perpendicular direction G V. This line G V may now be made the diagonal or cross line of a parallelogram * G W V X, and hence if G V represent the weight, and its direction, it may be resolved into the two forces represented by G W and G X, which show the magnitude and

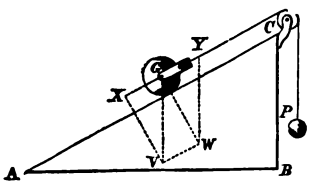


Fig. 16.

* See "Fifth Reader," Public School Series, p. 122.

direction of these forces. The force G X, as you see, is parallel to the inclined plane; the force G W is perpendicular to it. Hence the pressure G V through the centre of gravity is equal to these two other pressures G W and G X. But the pressure G W is not to be taken into account, for it is destroyed by the resistance the ground offers to it. The other pressure G X only acts so as to cause the body to run down the slope.

Now the short line G X bears the same proportion to the line V G as the height of the plane B C bears to its base A B, for these two lines in

Fig. 17.
The Tower of Belus, at Babylon, illustrating the inclined plane.

each are corresponding parts of an exactly similar triangle. G X is the height of one triangle, G V its base; just as C B and A B are the height and the base of another of the same geometrical shape.

To draw the body G up the inclined plane, therefore, it would be enough to use any pressure in the direction X G exceeding the pressure G X, and the friction of the plane surface.

13. The result of all this is that the resistance to be surmounted in bearing a weight up an inclined plane is *as the length of a plane is to its height.*

If A C be twice the length of C B, one hundredweight at P will sustain two hundredweights at G, and if A C be six times the length of C B, P will balance six times G. Hence if a horse had to drag a loaded cart up a road which rose one foot in ten, the cart would have a tendency to run back equal to one-tenth of the weight of the load, and, thus, if the load were a ton, the horse would need to drag with a force of 224 lbs., or one-tenth of a ton more than would have been needed if the road had been level.

When mountains between which there is no pass have to be crossed by roads, the inclined plane is very often made use of, to make the ascent easy by winding round in a gradual rise, or ascending in slow zigzags, comparatively easy for travel. The tower of Belus at Babel is said to have been built with a winding path round it to aid the ascent to its lofty top, as in the background of the accompanying illustration. (Fig.17.)

Fig. 18.

Fig. 19.

Fig. 20.

14. The FIFTH MECHANICAL POWER, the WEDGE, is simply a movable inclined plane, or rather two inclined planes, placed base to base, so as to have the two slopes outwards.

In its simplest form the wedge is used for raising heavy bodies sufficiently to allow the use of levers, and to split timber, stones, &c. (Fig. 18.)

In countries like Canada the rails used everywhere for fences are split from the log by wedges. Ships are raised in the dry dock by driving wedges under them, and the oil is pressed from seeds by wedges driven between pieces of wood placed on each side of the seed bags.

Knives and all cutting-tools act on the principle of sharp wedges, and so does the plough, which forces itself through the soil by its wedge shape.

15. The SIXTH MECHANICAL POWER is the SCREW. It is another variety of the *inclined plane*. (Figs. 19, 20.) The moulds from which screws are made may be formed by wrapping an inclined plane of wire round a

larger wire and taking the impression of the spiral thus formed. Thus the screw is exactly like the inclined road winding up a tower or round a hill. You can yourselves illustrate this if you take a piece of paper cut into the form of a right-angled triangle (Fig. 21) with the side A' E the

Fig. 21.

same length as a common round ruler, which you must also have for the experiment. If you now put the edge A E lengthwise to the ruler, and wrap the triangle round it, you will find that the slanting side or inclined plane of the triangle will make a spiral, or screw, going four times round the ruler.

The turns or spiral of the screw are called its *threads*.

The power of the screw is made use of by causing it to move through a nut (N, Fig. 19), the screw itself being in some cases fixed and immovable, while the nut is made to turn, while in others the nut is fixed and the screw is made to turn through it.

16. Fig. 19 represents a combination of the lever and the screw, which is the ordinary form of the use of the screw, for practically it is never used alone. The power is applied to the end of the lever at P, and the weight or pressure W is sustained by the screw, as in the common screw press. If the distance A B between any two threads of the screw be half an inch, and the circle described by turning round the end of the lever P be five feet, or 120 half-inches, then a force or pressure of one pound at P will sustain a weight of 120 lbs. at W.

Thus you see that the power exerted at the end of the lever, or, in other words, at the circumference of the circle made by the power, is to be multiplied by this circumference, and the result, multiplied by the distance between two threads of the screw, is equal to the weight or resistance that has to be overcome. Don't go further till you understand all this.

17. If the weight or resistance to be overcome be known, and the power required to overcome it be the point to be ascertained, the process is, in some measure, reversed. You have to divide by the circumference instead of multiplying by it. Thus, suppose the lever of a screw were 60 inches long, reckoning from the centre of the screw, and the distance between the threads one inch, what would be the power required to produce a pressure of 4,000 lbs. ?

Now the diameter of such a circle would be twice 60 inches = 120 inches, and the circumference, in round figures, would be, say, three times as much, or 360 inches.

The pressure—4,000 lbs. multiplied by the distance between the two threads—1 inch—would be 4,000 × 1 = 4,000. The power required would therefore be 4,000 divided by 360, which would give the result as 11⅛ lbs. But this is only what it would be if there were no friction to be overcome in turning the screw, and hence as the friction is equal to the exertion of one-third more power, that amount must be added, and thus, in this case the real force required would be nearly 15 lbs.

The power of the screw may be increased either by increasing the length of the lever, and thus enlarging the circle round which the power moves, or by increasing the number of turns of the thread. The same

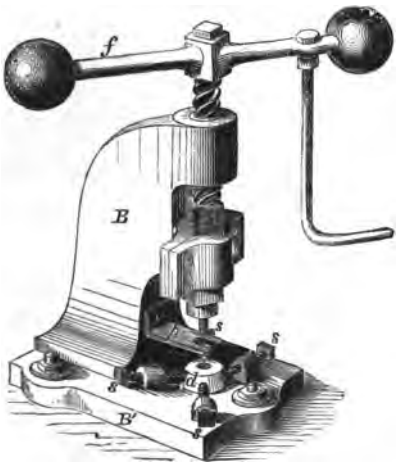


Fig. 22.

f a wrought-iron lever, with a solid cast-iron ball at each end; B the body of the press; *ss* four screws to keep the bed or bottom die *d* in its place; *p* the *puller-off*, which detaches the metal from the die after the stamping. B' the bottom plate of the machine.

power which sustained a weight of 120 in a screw, in which the threads are half an inch apart, would sustain 240 lbs. if they were only a quarter of an inch separate, that is, if the lever were in both cases the same length. But, of course, the threads must not be too fine else they will break when used.

18. The Screw is used very largely where a great pressure is needed for the moment, as in the Cutting-Press (Fig. 22) for punching holes in metal, moulding thin pieces of metal into various shapes, and stamping devices on medals and coins. It is also very much in use where great continuous pressure is needed, as in Bookbinders' Presses (Fig. 23). The continuousness of the pressure is caused by the great friction produced by the pressure

of the threads of the screw on the nut of iron or wood through which it is made to pass.

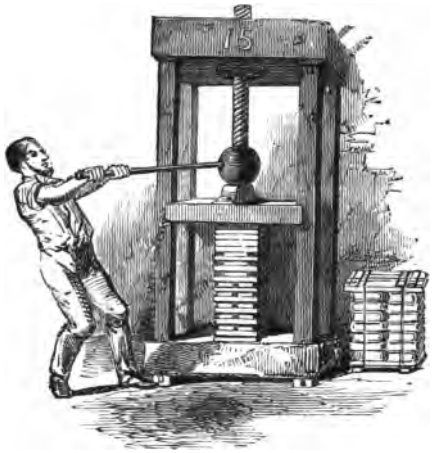


Fig. 23.

Sometimes the screw is employed in connection with a wheel which it turns by acting on its teeth, as in the Candle-cutting Machine (Fig. 24).

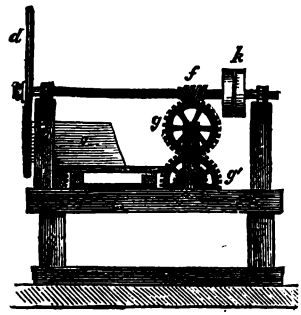


Fig. 24.

Candle-cutting Machine.—*f* the endless screw; *gg'* toothed wheels; *d* a fly-wheel; *k* a fast and loose pulley, over which a leather band is passed; *l l* framework; *c* mass of prepared candle composition.

Each turn of the screw, you will notice, catches a fresh tooth of the wheel and pushes it forward, thus causing the wheel to revolve continuously. This is called an *endless screw*, because its action never stops.

RACES OF EUROPE.—*Hyde Clarke, D.C.L.*

ALL mankind belong to several great stocks or families of races, as the Indo-European, the Chinese, the Syro-Arabian, the Americo-Indian; and each of these is again further divided. Thus, under the Indo-European come the Germanic, the Slavonic, the Celtic, and other great families. The Germanic stock again includes or brings together the English, High Dutch, and Scandinavian. The Celtic stock includes the Welsh, Irish, Manx, and Breton.

The leading great stocks in Europe are the following :—

INDO-EUROPEAN; as English, Welsh, Irish, French, Russians, Gipsies.
UGRO-TARTARIAN or FINNISH; as Magyars, Fins, Laps, Basques.
TURKISH; as Turks.
SYRO-ARABIAN; as Jews.

The Indo-European is the greatest of these, and the mightiest in the world, although more souls belong to the Chinese stock. The Indo-Europeans reach from Burmah through Western Asia, spreading over Europe, and, further, throughout North and South America; and the European branches are thus divided :—

GERMANIC:	Anglo-Suevian..	English, Americo-English.
		Old Saxons, Burgundians, Goths, Vandals, Jutes, Longbeards (or *Lombards*), *Danes.*
		Frisians of Friesland, Heligoland, and Jutland.
		Netherlanders, Hollanders, and Flemings.
	Low Dutch	Low Dutch, or Germans.
	High Dutch	High Dutch, or Germans.
		German Swiss.
	Scandinavians ..	Danes and Norwegians.
		Swedes.
		Icelanders.
CELTIC:	Welsh	Welsh of Wales.
		Old Cornish.
		Bretons of Brittany.
	Irish	Irish of Ireland.
		Irish or Erse of the Scotch Highlands.
		Manx of the Isle of Man.
MIXED CELTO-ROMAN:	Italian	Italians.
	French	French Canadians.
		French Swiss.
		Savoyards.

	Iberian	Spaniards, Americo-Spaniards.
		Portuguese, Brazilians.
		Sicilians.
		Sardinians.
	Wallach	Wallachians.
Hellenic:	Hellenic	Greeks.
	Albanian	Albanians.
	Armenian	Armenians.
Slavonic:	Czech or Chekh	Czechs or Bohemians.
		Slovaks of Hungary.
		Poles.
	Russ	Russians.
		Slavonians.
		Croats.
	Lithuanic	Lithuanians.

The leading living tongues belonging to the Germanic stock are the English, Frisian, Netherlandish or Flemish (sometimes called Dutch), High Dutch (sometimes called German), Danish, Swedish, and Icelandic. These again may be thus classified:—

Anglo-Suevian..	English.
	Frisian.
Low Dutch	Flemish or Netherlandish.
	Low Dutch or Platt Dutch.
High Dutch	High Dutch.
Norse	Danish or Norwegian.
	Swedish.
	Icelandic.

Our islands seem to have been first settled by the great Euskardian or Iberian stock, belonging to the Ugro-Tartarian, which once spread over Western Europe, but of which all that is left are the Basques in Spain, unless the Fins of several kinds are likewise to be reckoned, and unless, in the west of Ireland, some Iberian blood still lingers under the name of Spanish, as the common belief there is. The Iberians were slaughtered or driven out of Britain by the Celts; but in the time of the Romans, the Silures, in South Wales, still had a Spanish look, as Tacitus tells us. The Celts were yielding before inroads of the Belgians in Britain and Ireland, when the Romans made themselves masters of the islands, and for a time stayed the downfall of the Celts. In the fifth century after Christ, however, the Roman might tottered, the Germani rushed on the Roman empire and swept all before them. In these islands the Celts threw off the Roman yoke, but did not long hold sway; for the Northern Germani, or English kin, came over the North Sea and began to settle on the eastern shore, slowly spreading themselves till all the islands fell under their yoke.

In the Roman time the Saxons and Frisians who were on the west side of Jutland made their first inroads, and hence the Celts called all the Germanic comers Saxons, as the Welsh, Irish, and Highlanders do to this day. The Frisians, Saxons, and Jutes seem to have been among the first who made good their landing, and set up the commonwealths of Kent, of the South-rick* or Sur-rey, of the East, Middle, South, and West Saxons, and of Wight. The English, however, passing from their seat in the east of Jutland to the west, soon took the leadership, and the names of the other Germani were lost in theirs, giving to the land, folk, speech, and laws, the name of English. The English, Warings, and Frisians were very near akin, their speech much alike, and their laws the same, so that they readily mingled together in these islands, as they did in Russia. The old or first Danes seem to have been near akin to the English, as were the Jutes, Vandals, and Bructwara; and all these had more or less share in the first settlement. Under the name of English, all England, to the north of the Thames, and up to the Highlands of Wales and Scotland, was filled by them, the leading commonwealths being those of the North and South Folk of East English,—of Lindsey,—of the Wiccii,—of the Middle English or Mercians,—of Bernicia and Deiri in Northumberland,—of Cumberland,—and of Lothian.

It seems very likely that English sea-kings were among the first who seated themselves on the shores of South Wales, Anglesea, Scotland, and Ireland; their settlements, like those in England, being afterwards taken by the Northmen or Scandinavians.†

NOTE.—The Frisians, who speak much like the West Somerseters, still hold themselves as our kinsmen, and the likeness of the two tongues is well shown in their common saying:—

Good butter and good cheese,
Is good English and good Freese.

Some of Shakspeare's plays have been put into Frisian almost word for word.

A PARENTAL ODE TO MY SON —*T. Hood.*‡

THOU happy, happy elf!
(But stop,—first let me kiss away that tear)—
Thou tiny image of myself!
(My love, he's poking peas into his ear!)

* South *Reich* (German) *Kingdom.*

† The countries, &c., named in this Lesson should be carefully sought out on the map by the scholar. If *thoroughly studied*, it will be found to give a great amount of information in a very small compass.

‡ See p. 202, "Fifth Reader."

Thou merry, laughing sprite!
With spirits feather-light,
Untouch'd by sorrow, and unsoil'd by sin—
(Good heavens! the child is swallowing a pin!)

Thou little tricksy Puck!
With antic toys so funnily bestuck,
Light as the singing bird that wings the air—
(The door! the door! he'll tumble down the stair!)
Thou darling of thy sire!
(Why, Jane, he'll set his pinafore a-fire!)
Thou imp of mirth and joy!
In Love's dear chain so strong and bright a link,
Thou idol of thy parents—(Drat the boy!
There goes my ink!)

Thou cherub—but of earth;
Fit playfellow for Fays, by moonlight pale,
In harmless sport and mirth,
(That dog will bite him if he pulls its tail!)
Thou human humming-bee, extracting honey
From ev'ry blossom in the world that blows,
Singing in Youth's Elysium ever sunny,
(Another tumble!—that's his precious nose!)

Thy father's pride and hope!
(He'll break the mirror with that skipping-rope!)
With pure heart newly stamp'd from Nature's mint—
(Where *did* he learn that squint?)
Thou young domestic dove!
(He'll have that jug off, with another shove!)
Dear nursling of the Hymeneal nest!
(Are those torn clothes his best?)
Little epitome of man!
(He'll climb the table, that's his plan!)
Touch'd with the beauteous tints of dawning life—
(He's got a knife!)

Thou enviable being!
No storms, no clouds, in thy blue sky foreseeing,
Play on, play on,
My elfin John!
Toss the light ball—bestride the stick—
(I knew so many cakes would make him sick!)

With fancies, buoyant as the thistle-down,
Prompting the face grotesque and antic brisk,
With many a lamb-like frisk,
(He's got the scissors, snipping at your gown!)

Thou pretty opening rose!
(Go to your mother, child, and wipe your nose!)
Balmy and breathing music like the South,
(He really brings my heart into my mouth!)
Fresh as the morn, and brilliant as its star,—
(I wish that window had an iron bar!)
Bold as the hawk, yet gentle as the dove,—
(I'll tell you what, my love,
I cannot write, unless he's sent above!)

Give the meaning of elf, sprites, Puck, Elysium, hymeneal, epitome, elfin, grotesque.

Write out the verbs, with their voices, moods, tenses, &c., &c.

Dr. Johnson.

DR. JOHNSON'S ESTIMATE OF ADDISON.

THE end of this useful life was now approaching. Addison had for some time been oppressed by shortness of breath, which was now aggravated by a dropsy; and, finding his danger pressing, he prepared to die conformably to his own precepts and professions.

During this lingering decay he sent, as Pope relates, a message by the Earl of Warwick to Mr. Gay, desiring to see

him. Gay, who had not visited him for some time before, obeyed the summons, and found himself received with great kindness. The purpose for which the interview had been solicited was then discovered. Addison told him that he had injured him; but that, if he recovered, he would recompense him. What the injury was he did not explain; nor did Gay ever know, but supposed that some preferment designed for him had, by Addison's intervention, been withheld.

Lord Warwick was a young man of very irregular life, and perhaps of loose opinions. Addison, for whom he did not want respect, had very diligently endeavoured to reclaim him; but his arguments and expostulations had no effect. One experiment, however, remained to be tried. When he found his life near its end, he directed the young lord to be called, and when he desired, with great tenderness, to hear his last injunctions, told him, "I have sent for you, that you may see how a Christian can die." What effect this awful scene had on the earl I know not: he likewise died himself in a short time. He died June 17, 1719, at Holland House, leaving no child but a daughter.

Of his habits, or external manners, nothing is so often mentioned as that timorous or sullen taciturnity which his friends called modesty by too mild a name. Steele mentions with great tenderness "that remarkable bashfulness, which is a cloak that hides and muffles merit;" and tells us, "that his abilities were covered only by modesty, which doubles the beauties which are seen, and gives credit and esteem to all that are concealed." Chesterfield affirms that "Addison was the most timorous and awkward man that he ever saw." And Addison, speaking of his own deficience in conversation, used to say of himself, that, with respect to intellectual "wealth, he could draw bills for a thousand pounds, though he had not a guinea in his pocket."

That he wanted current coin for ready payment, and by that want was often obstructed and distressed; that he was often oppressed by an improper and ungraceful timidity, every testimony concurs to prove; but Chesterfield's representation is doubtless hyperbolical. That man cannot be supposed very inexpert in the arts of conversation and practice of life who, without fortune or alliance, by his usefulness and dexterity, became secretary of state, and who died at forty-seven, after having not only stood long in the highest rank of wit and literature, but filled one of the most important offices of state.

The time in which he lived had reason to lament his obstinacy of silence; "for he was," says Steele, "above all men in that talent called humour, and enjoyed it in such perfection, that I have often reflected, after a night spent with him apart from all the world, that I had had the pleasure of conversing with an intimate acquaintance of Terence and Catullus, who had all their wit and nature, heightened with humour more exquisite and delightful than any other man ever possessed." This is the fondness of a friend; let us hear what is told us by a rival. "Addison's conversation," says Pope, "had something in it more charming than I have found in any other man. But this was only when familiar; before strangers, or, perhaps, a single stranger, he preserved his dignity by a stiff silence."

This modesty was by no means inconsistent with a very high opinion of his own merit. He demanded to be the first name in modern wit; and, with Steele to echo him, used to depreciate Dryden, whom Pope and Congreve defended against them.

His own powers were such as might have satisfied him with conscious excellence. Of very extensive learning he has, indeed, given no proofs. He seems to have had small acquaintance with the sciences, and to have read little except Latin and French. The abundance of his own mind left him little in need of adventitious sentiments; his wit always could suggest what the occasion demanded. He had read with critical eyes the important volume of human life, and knew the heart of man, from the depths of stratagem to the surface of affectation.

What he knew he could easily communicate. "This," says Steele, "was particular in this writer, that, when he had taken his resolution, or made his plan for what he designed to write, he would walk about a room, and dictate it into language with as much freedom and ease as any one could write it down, and attend to the coherence and grammar of what he dictated."

Pope, who can be less suspected of favouring his memory, declares that he wrote very fluently, but was slow and scrupulous in correcting; that many of his *Spectators* were written very fast, and sent immediately to the press; and that it seemed to be for his advantage not to have time for much revisal.

"He would alter," says Pope, "anything to please his friends before publication; but would not retouch his pieces afterwards; and I believe not one word in 'Cato,' to which I made an objection, was suffered to stand."

One slight lineament of his character Swift has preserved.

It was his practice, when he found any man invincibly wrong, to flatter his opinions by acquiescence, and sink him yet deeper in absurdity. This artifice of mischief was admired by Stella; and Swift seems to approve her admiration.

If any judgment be made, from his books, of his moral character, nothing will be found but purity and excellence. Knowledge of mankind, indeed, less extensive than that of Addison will show, that to write and to live are very different. Many who praise virtue do no more than praise it. Yet it is reasonable to believe that Addison's professions and practice were at no great variance, since, amidst that storm of faction in which most of his life was passed, though his station made him conspicuous, and his activity made him formidable, the character given him by his friends was never contradicted by his enemies: of those with whom interest or opinion united him he had not only the esteem, but the kindness; and of others, whom the violence of opposition drove against him, though he might lose the love, he retained the reverence.

NOTES.—*Johnson, Dr. Samuel.*—An eminent critic, miscellaneous writer, and lexicographer. He was born at Lichfield in 1709, and died in London, 1784, having risen to be the centre of London literary society for many years before his death. Always fond of ponderous sonorous words and of a rhetorical style, his later writings are nevertheless much freer from these defects than his earlier. This extract is from "The Lives of the Poets," published in 1779-81, only three years before he died. Johnson was buried in Westminster Abbey. *Addison, Joseph.*—Born at Milston, Wilts, 1672. His daughter died in 1797, unmarried. He was buried in Westminster. Elsewhere Johnson says: "Whoever wishes to attain an English style, familiar but not coarse, and elegant but not ostentatious, must give his days and nights to the volumes of Addison." *Pope, Alexander.*—A famous English poet. Son of a linen-draper in the Strand. Born, 1688; died, 1744. *Gay, John.*—An English poet. Born at Barnstaple, Devonshire, in 1688. Died, 1732. Buried in Westminster Abbey. He is now remembered most by his "Fables." *Holland House.*—The mansion of Lord Holland, London. Built by Sir Walter Cope, in 1607. Born, 1627; died, 1716. *Steele, Sir Richard.*—One of the famous "English Essayists" of Addison's day. Born at Dublin, 1671; died, 1729, in Wales. *Chesterfield (Philip Dormer Stanhope, Fourth Earl of).*—Born, 1694; died, 1773. Esteemed in his day a man of wit and literary taste. *Terence.*—A Latin dramatic poet—a native of Carthage—sold as a slave but freed by his master, whose name, as the custom was, he took. Born about B.C. 218; died about B.C. 159. *Catullus.*—A Latin poet. Born at Verona, B.C. 86; died B.C. 46. *Dryden, John.*—An eminent English poet and prose writer. Born, 1631; died, in London, 1700. Buried in Westminster Abbey. His prose is perhaps the finest in the language; his satires are admirable, his translations gross; his plays are forgotten. *Congreve, William.*—An English dramatist. Born in Yorkshire, 1672. Died in London, 1729. Buried in Westminster. *Spectator.*—A famous literary periodical begun by Steele and Addison, March 1, 1711, and continued for 555 numbers, till Dec. 6, 1712. Addison subsequently tried to revive it, but could not. *Cato.*—A tragedy of Addison's, published in 1713. *Swift, Jonathan.*—Dean of St. Patrick's, Dublin: a great political writer of Addison's day. His style makes him a classic, but he is often coarse and even obscene. Born at Dublin, 1667; died, 1745. *Stella.*—Miss Esther Johnson, who is said to have been secretly married to Swift, but never being acknowledged by him as his wife, broke her heart and died in 1727. Swift afterwards treated another lady, "Vanessa"—Miss Vanhomrigh—in the same utterly heartless way. He was the author of "Gulliver's Travels," which was a satire on the politicians of the day. He sank into imbecility for some time before he died.

THE IVY GREEN.—*Dickens.**

H a dainty plant is the Ivy green,
That creepeth o'er ruins old!
On right choice food are his meals, I ween,
In his cell so lone and cold.
The walls must be crumbled, the stones decay'd,
To pleasure his dainty whim;
And the mould'ring dust that years have made
Is a merry meal for him.
Creeping where no life is seen,
A rare old plant is the Ivy green.

Fast he stealeth on, though he wears no wings,
And a stanch old heart has he;
How closely he twineth, how tight he clings
To his friend, the huge Oak Tree!
And slily he traileth along the ground,
And his leaves he gently waves,
And he joyously twines and hugs around
The rich mould of dead men's graves.
Creeping where grim death has been,
A rare old plant is the Ivy green.

Whole ages have fled, and their works decay'd,
And nations have scattered been;
But the stout old Ivy shall never fade
From its hale and hearty green.
The brave old plant in its lonely days
Shall fatten on the past;
For the stateliest building man can raise
Is the Ivy's food at last.
Creeping on where time has been,
A rare old plant is the Ivy green.

* See p. 28, "Fifth Reader."

THE SICK CHILD.—*Charles Dickens.**

Some years ago, being in Scotland, I went with one of the most humane members of the humane medical profession, on a morning tour among some of the worst-lodged inhabitants of the old town of Edinburgh. In the closes and wynds of that picturesque place—I am sorry to remind you what fast friends picturesqueness and typhus often are—we saw more poverty and sickness in an hour than many people would believe in a life. Our way lay from one to another of the most wretched dwellings, reeking with horrible odours; shut out from the sky, shut out from the air, mere pits and dens. In a room in one of these places, where there was an empty porridge-pot on the cold hearth, with a ragged woman and some ragged children crouching on the bare ground near it—where, I remember as I speak, the very light, refracted from a high damp-stained and time-stained house-wall, came trembling in, as if the fever which had shaken everything else there had shaken even it—there lay, in an old egg-box which the mother had begged from a shop, a little feeble, wasted, wan, sick child. With his little wasted face, and his little hot, worn hands folded over his breast, and his little bright, attentive eyes, I can see him now, as I have seen him for several years, looking steadily at us. There he lay in his little frail box, which was not at all a bad emblem of the little body from which he was slowly parting—there he lay, quite quiet, quite patient, saying never a word. He seldom cried, the mother said; he seldom complained; "He lay there, seemin' to woonder what it was a' aboot." God knows, I thought, as I stood looking at him, he had his reasons for wondering—reasons for wondering how it could possibly come to be that he lay there, left alone, feeble and full of pain, when he ought to have been as bright and as brisk as the birds that never got near him—reasons for wondering how he came to be left there, a little decrepit old man, pining to death, quite a thing of course, as if there were no crowds of healthy and happy children playing on the grass under the summer's sun within a stone's throw of him, as if there were no bright, moving sea on the other side of the great hill overhanging the city; as if there were no great clouds rushing over it; as if there were no life, and movement, and vigour anywhere in the world—nothing but stoppage and decay. There he lay looking

* See page 28, "Fifth Reader."

at us, saying in his silence, more pathetically than I have ever heard anything said by any orator in my life, "Will you please to tell me what this means, strange man? and if you can give me any good reason why I should be so soon, so far advanced on my way to Him who said that children were to come into His presence, and were not to be forbidden, but who scarcely meant, I think, that they should come by this hard road by which I am travelling; pray give that reason to me, for I seek it very earnestly and wonder about it very much;" and to my mind he has been wondering about it ever since. Many a poor child, sick and neglected, I have seen since that time in this London; many a poor sick child I have seen most affectionately and kindly tended by poor people, in an unwholesome house and under untoward circumstances, wherein its recovery was quite impossible; but at all such times I have seen my poor little drooping friend in his egg-box, and he has always addressed his dumb speech to me, and I have always found him wondering what it meant, and why, in the name of a gracious God, such things should be!

COMPOSITION.—Write out this story in your own words, briefly, with the proper punctuation, &c.

CHANGES OF LANGUAGE.—*Anon.*

WE need only trace back the stream of time about a thousand years, to find among the languages of Anglo-Saxon England, of Holland and Lower Germany, and of Upper Germany, a resemblance which certainly amounted to mutual intelligibility. The great mass of words in the languages spoken over this area was essentially the same, varied only by dialectic difference; and the structure of the grammar, except in some of the person-endings of verbs, was identical or analogous. Yet now, whatever radical affinity scientific dissection may reveal among the three prominent forms of speech in the countries above-named—*i. e.* German, Dutch, and English—it is found that, though German has changed least, and Dutch less than English, practically a person speaking only one of these needs an interpreter for the other two. Once, a national song might, without translation, have gained popularity over all these lands; now there are three wholly distinct, and in many points unsympathetic, literatures.

We have only to go back eight hundred years, to find all over Denmark, Sweden, Norway, and Iceland one uniform tongue prevalent among all classes. And we have only to look at the present condition of things to discover this singular alteration—that, while the original language has remained without substantial change in Iceland alone, in Sweden it has taken one new form, and in Denmark and Norway another; so that there are now three languages where there was but one, and he who possesses a native knowledge of only a single member of the trio must learn the other two with grammar and dictionary.

Furthermore, in the south of Europe, a retrospect of fifteen hundred years will show us the entire body of the influential classes throughout the modern Portugal, Spain, France, Italy, Wallachia, and other countries also, using as their mother-tongue the Latin language, with such perfect uniformity that no scrutiny can detect among which of the populations above-named a Latin book of that period was produced. Yet now we have, of languages and literatures derived from the disintegrated Latin, no less than six prominently distinct, and, of minor forms of the same, a great many more. A Spaniard and an Italian may doubtless acquire each other's language more readily than a German or a Hollander would that of either of them; but without this special acquisition all interchange of thought and feeling is at an end among these respective nations apparently for ever.

The linguistic fact, that about A.D. 400 all these numerous populations had accepted the tongue of Rome, is only the obverse of the social fact, that Rome had for them become the pivot, upon which all their interests, civil, moral, and intellectual, were revolving. And ever since the epoch when, through the Barbaric Irruption, Rome ceased to be this, the number of languages sprung from the Latin has tended to vary as the number of states at that time existing within the ancient Roman territory. In the Iberian peninsula Catalan decays and declines, because the realm of which it was the vernacular has been absorbed by the kingdom of Castile, which, having annexed two-thirds of the Trans-Pyrenean region, and centred its sway at Madrid, has made its language predominant throughout all Spain, under the native and only correct title of "La Lengua Castellana." Portuguese, on the other hand, still holds its ground, because Portugal resolutely rejected this Castilian centralization. In France, the Provençal gave way

before Northern French, when the virtually independent feudatories in the South, whose native tongue it was, were swallowed up by the all-engulfing vortex of Parisian centralization. And the cause that in Italy the popular dialects are more numerous and important than in any other country in Europe, is simply that in no country has there been, in mediæval and modern times, less of political union round any one centre. The sole form of the linguistic centripetal force which modern Italy has ever yet experienced, was the intellectually-centralizing power of Tuscany; and this we accordingly find denoted by the true name of the standard dialect of education and refinement, "La Lingua Toscana."

All over the globe the same laws hold good. In the dissolution of the old Scandinavian linguistic unity, Norway, in defiance of all antecedent geographical probability, accompanied Denmark and not Sweden, because her political centre was Copenhagen and not Stockholm. The centripetal force was energized by the Danish spirit of centralization, and, therefore, between these two kingdoms no divergence of language took place. Now, on the other hand, Norway chafes and fumes beneath the once welcome yoke of the Danish language, and casts about for any means, natural or artificial, to work out for herself a form of speech the laws of which shall be enacted in her own metropolis, because she has risen into a self-governing commonwealth, under no foreign control but the merely nominal presidency of the Swedish crown. At present, therefore, in Norway the centrifugal force is restlessly active, because the decentralization with regard to Sweden and Denmark is complete. If again we are asked why, throughout the enormous length and breadth of Madagascar, the language is one, the answer is indicated by the vigorous centralization which the conquering race of the Hovas, who first united the island under one sway, have organized in their capital Antananarivo. Or would we know why in Borneo, hardly a larger island, the languages count, it is said, by hundreds, the reason is found in that total absence of any great centralizing power, which leaves the various tribes practically in anarchical independence.

In the eastern half of Europe, we find among the so-called Slavonic family—viz., the Polish, Russian, Servian, Bohemian, &c.—just about the same degree of difference and resemblance as exists among the six descendants of the Latin. The same relation also prevails in that class of which Hebrew is a member; viz., the Arabic, Aramaïc, Ethiopic, &c. In Oceania

we hit upon an analogous group comprising the languages of New Zealand, Hawaii, Tahiti, &c.; in Australia the same thing is repeated; and so on in numberless places. And thus, as we survey the globe, we see its surface everywhere dotted with the site of a Babel; until at last we learn that the splitting-up of one language into several is so far from being an isolated or unusual event, that it is as commonly recurrent as any in history.

The immense diffusion of Latin, about A.D. 300 or 400, was a remarkable instance of peoples once using more than one language coming to use but one. Populations, speaking the Gaulish, the Cantabrian, the Etruscan, the Oscan, the Umbrian, &c., converged linguistically in the direction of Rome, by forsaking their mother-tongues and taking up hers. And in parts of the same area there have been examples of convergence of a second order since the grand disruption of Latin between the fifth and ninth centuries of our era. Catalonia, possessing a language of Latin descent, converged towards Castile, when she discarded this, the native Catalan, from her law-courts, and from all the serious intercourse of life, and adopted another tongue of similar origin — the standard Castilian of the united Spanish monarchy. Southern France also began to converge towards Paris, when the noble and beautiful Langue d' Oc was displaced from its official and literary throne, and the poor and meagre Langue d' Oil was made to reign in its stead. Perhaps the most astonishing instance of this kind was, when Syria, Egypt, Palestine, Babylonia, Northern Africa, &c., so converged in the matter of language towards Mecca, that, at this moment, an author in Arabic may command a public of eighty millions.

Iceland. — Was discovered by Norwegians about A.D. 861, and peopled by them in 874. It has belonged to Denmark since 1397. *Barbaric Irruption.*— From about A.D. 200, the attacks on the Roman empire by the German tribes of Goths, Vandals, Alani, Suevi, and others, continued at intervals till, in the sixth century, after losing province after province, Rome itself finally passed into "barbarian" hands. It had already been taken by Alaric, the Visigoth, in 410; by Genseric, the Vandal, who sacked it, in 455; by Odoacer, the Goth, in 476; and by Totila, the Goth, twice, in 546 and 549. *Catalan.* — The language of Catalonia, a province of Spain. *Iberian Peninsula.* — Spain and Portugal. The River Iberus, now the Ebro, separated the Roman territory from the Carthaginian, in the Peninsula, to which it gave its name. *Portugal rejected it.*—Spain long tried to absorb Portugal, and Philip II. succeeded for a time; but the Portuguese threw off the yoke in 1640, and placed the house of Braganza, which still reigns, on the throne. *The Provençal.* —The language of Provence, an old province in the south-east of France. Provence at one time included the whole of the south of France in one kingdom. Its name was the continuation of the Roman usage by which the south-eastern part of France, in distinction from the rest of it, was spoken of as "The Province." *The Hovas.*—The Hovas are of the Malay race, and form part of the great migration which spread itself in past ages from the Malayan Peninsula, east and west, from Savage Island to Madagascar.

They are fair-skinned and commonly straight-haired. The other races of the island are the powerful Negroid Sakalavas of the north and west; the feeble Betsileos of the south, and the Betanims and others, partly Arab, of the east. *The Gaulish.*—The language of ancient Gaul (France). *Cantabrian.*—The language of northern Spain in Roman days. *The Etruscan, Oscan, Umbrian.*—Languages of ancient Italian kingdoms. *Langue d' Oc* and the *Langue d' Oil.*—The Visigoths and Burgundians south of the Loire said *oc* (the German *auch*) for *yes;* the Franks and Normans to the north of that river said *oil.* Hence the names for the languages. The ancient province of Languedoc (*Language of Oc*) has its name explained by this.—The *Langue d' Oc* is rich in mediæval literature, such as troubadour poetry, romances, &c. The literature of the *Langue d' Oil* is very meagre.

COMPOSITION.—Describe briefly and clearly, in your own words, the changes in European languages within the last 1,500 years.

SERMON IN A CHURCHYARD.—*Lord Macaulay*, 1825.

See "Fifth Reader," p. 163.

LET pious Damon take his seat,
With mincing step, and languid smile,
And scatter from his 'kerchief sweet,
Sabæan odours o'er the aisle;
And spread his little jewelled hand,
And smile round all the parish beauties,
And pat his curls, and smooth his band,
Meet prelude to his saintly duties.

Let the thronged audience press and stare,
Let stifled maidens ply the fan,
Admire his doctrines, and his hair,
And whisper, "What a good young man!"
While he explains what seems most clear,
So clearly that it seems perplexed,
I'll stay, and read my sermon here;
And skulls, and bones, shall be the text.

Art thou the jilted dupe of fame?
Dost thou with jealous anger pine
Whene'er she sounds some other name
With fonder emphasis than thine?
To thee I preach; draw near; attend!
Look on these bones, thou fool, and see
Where all her scorns and favours end,
What Byron is, and thou must be.

Dost thou revere, or praise, or trust
Some clod like those that here we spurn;
Something that sprang like thee from dust,
And shall like thee to dust return?

Dost thou rate statesmen, heroes, wits,
At one sere leaf, or wandering feather?
Behold the black, damp, narrow pits,
Where they and thou must lie together.

Dost thou beneath the smile or frown
Of some vain woman bend thy knee?
Here take thy stand, and trample down
Things that were once as fair as she.
Here rave of her ten thousand graces,
Bosom, and lip, and eye, and chin,
While, as in scorn, the fleshless faces
Of Hamiltons and Waldegraves grin.

Whate'er thy losses or thy gains,
Whate'er thy projects or thy fears,
Whate'er the joys, whate'er the pains,
That prompt thy baby smiles and tears;
Come to my school, and thou shalt learn,
In one short hour of placid thought,
A stoicism, more deep, more stern,
Than ever Zeno's porch hath taught.

The plots and feats of those that press
To seize on titles, wealth, or power,
Shall seem to thee a game of chess,
Devised to pass a tedious hour.
What matters it to him who fights
For shows of unsubstantial good,
Whether his Kings, and Queens, and Knights,
Be things of flesh, or things of wood?

We check, and take; exult, and fret;
Our plans extend, our passions rise,
Till in our ardour we forget
How worthless is the victor's prize.
Soon fades the spell, soon comes the night:
Say will it not be then the same,
Whether we played the black or white,
Whether we lost or won the game?

Dost thou among these hillocks stray,
O'er some dear idol's tomb to moan?
Know that thy foot is on the clay
Of hearts once wretched as thy own.

How many a father's anxious schemes,
How many rapturous thoughts of lovers,
How many a mother's cherished dreams,
The swelling turf before thee covers!

Here for the living, and the dead,
The weepers and the friends they weep,
Hath been ordained the same cold bed,
The same dark night, the same long sleep;
Why should'st thou writhe, and sob, and rave
O'er those with whom thou soon must be?
Death his own sting shall cure—the grave
Shall vanquish its own victory.

Here learn that all the griefs and joys,
Which now torment, which now beguile,
Are children's hurts, and children's toys,
Scarce worthy of one bitter smile.
Here learn that pulpit, throne, and press,
Sword, sceptre, lyre, alike are frail,
That science is a blind man's guess,
And History a nurse's tale.

Here learn that glory and disgrace,
Wisdom and folly, pass away,
That mirth hath its appointed space,
That sorrow is but for a day;
That all we love, and all we hate,
That all we hope, and all we fear,
Each mood of mind, each turn of fate,
Must end in dust and silence here.

Damon.—A classical name, used here for a clergyman. The use of such classical names in poetry was once very common, but is now given up. *What Byron is.*—The poem was written in 1825. Byron had died at Missolonghi on April 19, 1824, at the age of thirty-six years and three months. *Hamiltons.*—Miss Elizabeth Gunning, an Irish beauty who, in 1752, married the sixth Duke of Hamilton. Her sister Maria married the sixth Earl of Coventry. Horace Walpole says that the two sisters were spoken of in London society of the day as "the two handsomest women alive." *Waldegraves.*—Maria, grand-daughter of Sir Robert Walpole, her mother being a milliner's girl. She married the second Earl Waldegrave, and died in 1807. She was a woman of surpassing beauty. *Georgiana,* the beautiful Duchess of Devonshire, was another of the lovely women of that day. *Zeno.*—Founder of the sect of Stoics. Born about B.C. 357. Died about B.C. 263. He taught in the painted colonnade (*stoa*) at Athens, and from this his followers were called Stoics. They were the noblest sect of ancient philosophy. Marcus Aurelius, the Emperor, one of the grandest names of antiquity, was one.

Constance.

THE COUNCIL OF CONSTANCE.—*Dean Milman.*

See "Fifth Reader," Public School Series, p. 209.

In June the quiet streets of ancient Constance were disturbed by the first preparations for the great drama which was to be performed within her walls. In August came the Cardinal of Viviers, the Bishop of Ostia, with a distinguished suite, to take order for the accommodation of the Pope and of his cardinals. From that period to the Feast of All Saints, the day named for the opening of the Council, and for several months after, the converging roads which led to this central city were crowded with all ranks and orders, ecclesiastics and laymen, sovereign princes and ambassadors of sovereigns, archbishops and bishops, the heads or representatives of the great monastic orders, theologians, doctors of canon or of civil law, delegates from renowned universities, some with splendid and numerous retainers, some like trains of pilgrims, some singly and on foot. With these, merchants, traders of every kind and degree, and every sort of wild and strange vehicle. It was not only, it might seem, to be a solemn Christian council, but an European congress, a

vast central fair, where every kind of commerce was to be conducted on the boldest scale, and where chivalrous or histrionic or other common amusements were provided for idle hours and for idle people. It might seem a final and concentrated burst and manifestation of mediæval devotion, mediæval splendour, mediæval diversions;—all ranks, all orders, all pursuits, all professions, all trades, all artisans, with their various attire, habits, manners, language, crowded to one single city.

On the steep slope of the Alps were seen winding down, now emerging from the autumn-tinted chestnut groves, now lost again, the rich cavalcades of the cardinals, the prelates, the princes of Italy, each with their martial guard or their ecclesiastical pomp. The blue spacious lake was studded with boats and barks, conveying the bishops and abbots, the knights and grave burghers, of the Tyrol, of Eastern and Northern Germany, Hungary, and from the Black Forest and Thuringia. Along the whole course of the Rhine, from Cologne, even from Brabant, Flanders, or the farthest North, from England and from France, marched prelates, abbots, doctors of law, celebrated schoolmen, following the upward course of the stream, and gathering as they advanced new hosts from the provinces and cities to the east and west. Day after day the air was alive with the standards of princes, and the banners emblazoned with the armorial bearings of sovereigns, of nobles, of knights, of imperial cities; or glittered with the silver crosier, borne before some magnificent bishop or mitred abbot. Night after night the silence was broken by the pursuivants and trumpeters announcing the arrival of some high and mighty count or duke, or the tinkling mule-bells of some lowlier caravan. The streets were crowded with curious spectators, eager to behold some splendid prince or ambassador, some churchman famous in the pulpit, in the school, in the council, it might be in the battle-field, or even some renowned minnesinger, or popular jongleur.

Council of Constance.—This council was held at Constance, on the lake of that name, in Switzerland, in the years 1414—1418. The reasons for its being summoned were, first, the spread of Wycliffe's opinions, and second, to try to put an end to the "Great Schism." Wycliffe had died in 1384, but his opinions were being spread widely on the Continent by John Huss and Jerome of Prague. "The Great Schism" had begun in 1378, when two popes, elected at the same time by rival factions, ruled, each, over part of Christendom—Urban VI. being acknowledged by Germany, England, Hungary, Portugal, &c., and his rival, Clement VII., by France, Spain, Scotland, Naples, &c. In 1409 a general council was held at Pisa to end this scandal. It deposed the two reigning popes and elected a third, but the two would not resign, so that there were now three. Meanwhile Huss and Jerome were vigorously preaching, with great effect, against the ecclesiastical corruptions of the time, and preparing the way for the Reformation, a century later. At last, in 1414, the great Council of Constance met. The three popes were deposed and Martin V. elected, in 1417, but Clement VII. would not resign till

1429, and thus the schism lasted till then. The Council, after many promises, did nothing in the way of Reformation, but it burned John Huss, July 6, 1415, in spite of his having a safeguard from the Emperor Sigismund; and Jerome, May 30, 1416. "Sigismund's blush," as he consented to his written word being broken, has passed into a proverb. Henry V. (1413—1422) was then reigning in England, and his great battle of Agincourt was fought (October 25, 1415), while the Council was fresh from Huss's martyrdom.

For difficult words, see the Vocabulary.

COMPOSITION.—Write out, in your own words, the substance of the note and of the Reading.

LIFE AND DEATH.—*Countess of Blessington.*

WHAT art thou, life?
A weary strife
  Of pain, and care, and sorrow;
Long hours of grief,
And joys how brief!
  That vanish on the morrow.
Death, what are thou,
To whom all bow,
  From sceptred king to slave?
The last, best friend,
Our cares to end,
  Thy empire's in the grave.
When all have fled
Thou giv'st a bed,
  Wherein we calmly sleep
The wounds all healed,
The dim eyes sealed,
  That long did wake and weep!

ROMAN TOMBS.—*Hawthorne.*

See "Fifth Reader," Public School Series, p. 71.

A LITTLE farther towards the city, we turned aside from the Appian Way, and came to the site of some ancient columbaria, close by what seemed to partake of the character of a villa and a farm-house. A man came out of the house, and unlocked a door in a low building, apparently quite modern; but on entering, we found ourselves looking into a large, square chamber, sunk entirely beneath the surface of the ground. A very narrow and steep staircase of stone, and evidently ancient, descended into this chamber; and, going down, we found the walls hollowed on all sides into little semi-circular niches, of which, I

believe, there were nine rows, one above another, and nine niches in each row. Thus they looked somewhat like the little entrances to a pigeon-house, and hence the name of columbarium. Each semicircular niche was about a foot in its semidiameter. In the centre of this subterranean chamber was a solid square column, or pier, rising to the roof, and containing other niches of the same pattern, besides one that was high and deep, rising to the height of a man from the floor, on each of

The Roman Forum.

the four sides. In every one of the semicircular niches were two round holes covered with an earthen plate, and in each hole were ashes and little fragments of bones—the ashes and bones of the dead, whose names were inscribed in Roman capitals on marble slabs, inlaid into the wall, over each individual niche. Very likely the great ones in the central pier had contained statues, or busts, or large urns; indeed, I remember that some such things were there, as well as bas-reliefs in the walls; but hardly more than the general aspect of this strange place

remains in my mind. It was the columbarium of the connections or dependants of the Cæsars; and the impression left on me was, that this mode of disposing of the dead was infinitely preferable to any which has been adopted since that day. The handful or two of dry dust and bits of dry bones in each of the small round holes had nothing disgusting in them; and they are no drier now than they were when first deposited there. I would rather have my ashes scattered over the soil, to help the growth of the grass and daisies; but still I should not murmur much at having them decently pigeon-holed in a Roman tomb.

A Roman Funeral Monument.

After ascending out of this chamber of the dead, we looked down into another similar one containing the ashes of Pompey's household, which was discovered only a very few years ago. Its arrangement was the same as that first described, except that it had no central pier, with a passage round it, as the former had.

What struck me as much as anything was the neatness of these subterranean apartments, which were quite as fit to sleep in as most of those occupied by living Romans; and having undergone no wear and tear, they were in as good condition as on the day they were built.

In this columbarium, measuring about twenty feet square, I roughly estimate that there have been deposited together the remains of at least seven or eight hundred persons, reckoning two little heaps of bones and ashes in each pigeon-hole, nine pigeon-holes in each row, and nine rows on each side, besides those on the middle pier. All difficulty in finding space for the dead would be obviated by returning to the ancient fashion of

reducing them to ashes; the only objection—though a very serious one—being the quantity of fuel that it would require. But perhaps future chemists may discover some better means of consuming or dissolving this troublesome mortality of ours.

We got into the carriage again, and, driving farther towards the city, came to the tomb of the Scipios, of the exterior of which I retain no very definite idea. It was close upon the Appian Way, however, though separated from it by a high fence, and accessible through a gateway, leading into a court. I think the tomb is wholly subterranean, and that the ground above it is covered with the buildings of a farm-house; but of this I cannot be certain, as we were led immediately into a dark, underground passage, by an elderly peasant of a cheerful and affable demeanour. As soon as he had brought us into the twilight of the tomb, he lighted a long wax taper for each of us, and led us, groping into blacker and blacker darkness. Even little R—— followed courageously in the procession, which looked very picturesque as we glanced backward or forward, and beheld a twinkling line of seven lights, glimmering faintly on our faces, and showing nothing beyond. The passages and niches of the tomb seem to have been hewn and hollowed out of the rock, not built by any art of masonry; but the walls were very dark, almost black, and our tapers so dim, that I could not gain a sufficient breadth of view to ascertain what kind of place it was. It was very dark indeed; the Mammoth Cave of Kentucky could not be darker. The rough-hewn roof was within touch, and sometimes we had to stoop to avoid hitting our heads; it was covered with damps, which collected and fell upon us in occasional drops. The passages, besides being narrow, were so irregular and crooked, that, after going a little way, it would have been impossible to return upon our steps without the help of the guide; and we appeared to be taking quite an extensive ramble underground, though, in reality, I suppose the tomb includes no great space. At several turns of our dismal way, the guide pointed to inscriptions in Roman capitals, commemorating various members of the Scipio family who were buried here; among them, a son of Scipio Africanus, who himself had his death and burial in a foreign land. All these inscriptions, however, are copies, the originals, which were really found here, having been removed to the Vatican. Whether any bones and ashes have been left, or whether any were found, I do not know. It is not, at all events, a particularly interesting spot, being such a shapeless blackness, and a

mere dark hole, requiring a stronger illumination than that of our tapers to distinguish it from any other cellar. I did, at one place, see a sort of frieze, rather roughly sculptured; and, as we returned towards the twilight of the entrance-passage, I discerned a large spider, who fled hastily away from our tapers—the solitary living inhabitant of the tomb of the Scipios.

NOTES.—*Appian Way.*—The great south road out of Rome. It was commenced by Appius Claudius, Cæcus (*the blind*) when Censor. It extended from Rome to Capua, and thence to Brundusium. Appius Claudius lived B.C. 300. *Columbarium.*—Literally, a dovecote or pigeon-house, but used of various objects similar in appearance to a pigeon-house; here used of a sepulchral chamber. The Romans burned their dead, and afterwards collected what ashes of the bodies they could, and put them into an urn. This was placed in one of a number of niches, very like a pigeon-hole, into which the wall of the chamber was divided. *The Cæsars.*—Specially used of the first twelve emperors of Rome, including Julius Cæsar. It subsequently, however, became a title given to all emperors. The German word *Kaiser* and the Russian *Czar* are derived from it, and show the greatness of Rome formerly. *Mammoth Cave of Kentucky.*—A great cave in Kentucky, formed, like other caverns by the action of water. It is said to have been explored to a distance of ten miles. It contains a subterranean lake called the Dead Sea, which is about thirty feet deep, and has a navigable river flowing out of it. Fish and insects without eyes are found in the cave. *Scipio Africanus.*—Publius Cornelius Scipio, surnamed Africanus, from his victories over the Carthaginians in Africa, was a great Roman general and consul. Born 235 B.C.; died about 180 B.C. *Vatican.*—A great palace in Rome, in which the Pope lives. It gets its name from being built on the Vatican hill, one of the eminences of ancient Rome. It is said to contain 7000 rooms, and has the finest collection of works of art, ancient and modern, in the world. The Vatican library, which is very famous, was founded in 1448 by Nicholas V. at the dawn of the Revival of Letters. It is very rich in MSS. as well as printed books.

ITALY.—*Norman Macleod, D.D.*

THE road from Nice to Genoa (the *Corniche*, as it is called) is of the same character with its continuation along the Riviera from Genoa to Pisa, or at least to beyond Spezzia, as far perhaps as Massa. We travelled the latter portion only by vetturino—that is, with a hired carriage driven with two horses, for about £2 per day. The journey occupied two and a half days, sleeping the first night at Sestri, and the second at Spezzia. It would be difficult to exaggerate the beauty of this excursion, which can hardly be matched perhaps in the world, except on the Neapolitan or Sicilian coast. The Apenninse here run, a few miles off, parallel to the Mediterranean, to which they connect themselves by long spurs or ridges which rise up into conical hills, wind round deep valleys, range themselves into high mountain passes with rock and precipice, open out at the sea into wide bays with beaches of pure sand, or end in bold headlands, like Porto Fino, which abruptly plunge themselves into deep water. But who can describe the endless beauties of this scene, when every turn of the road reveals

some new grouping of marvellous beauty! To the right is the glorious ocean; is it green as emerald, blue as lapis-lazuli? or do not the colours of the topaz and amethyst mingle with these? It is dotted with pure white sails, like sea-birds on its bosom, and loses itself in the horizon on the way to Egypt and Palestine. The road sometimes passed so near its margin that one gazed down into the crystal depths, and heard the laughter of the waves on the shore; the air was loaded with the perfume of orange-trees and the most subtle and delicate odours; everywhere, as far as the eye could see inland, were festooned vineyards, groves of olives, with figs, chestnuts, dark cypresses—every shade of green lighted up by flowers of every hue; everywhere, from sea to mountain, white cottages like specks of light relieving the foliage; villages perched on the sides and on the tops of the hills, nestling deep down or far up in the valleys, and each with its attendant church spire, all filling the air at evening with the echoing chimes of bells;—and then overhead the dome of the blue sky that no art can ever picture, and all day enjoying an atmosphere which glorified every object with its luminous splendour! Ding, ding, ding, rung the bells of our little horses, as we wheeled through this scene hour after hour, until, from expressing our wonder as every moment some new view burst upon us, we became weary of speech, and gazed in silent and absorbed admiration, until some object for a moment concealed the view, and then we drew our breath and gave vent to our common sense of the surpassing beauty around us.

THE BATTLE OF MONCONTOUR.—*Macaulay.* 1824.

Oh, weep for Moncontour! Oh! weep for the hour
When the children of darkness and evil had power,
When the horsemen of Valois triumphantly trod
On the bosoms that bled for their rights and their God.

Oh, weep for Moncontour! Oh! weep for the slain,
Who for faith and for freedom lay slaughtered in vain;
Oh, weep for the living, who linger to bear
The renegade's shame, or the exile's despair.

One look, one last look, to our cots and our towers,
To the rows of our vines, and the beds of our flowers,
To the church where the bones of our fathers decayed,
Where we fondly had deemed that our own would be laid.

Alas! we must leave thee, dear desolate home,
To the spearmen of Uri, the shavelings of Rome,
To the serpent of Florence, the vulture of Spain,
To the pride of Anjou, and the guile of Lorraine.

Farewell to thy fountains, farewell to thy shades,
To the song of thy youths, and the dance of thy maids,
To the breath of thy gardens, the hum of thy bees,
And the long waving line of the blue Pyrenees.

Farewell, and for ever. The priest and the slave
May rule in the halls of the free and the brave.
Our hearths we abandon; our lands we resign
But, Father, we kneel to no altar but thine.

NOTES.—*Moncontour.*—Moncontour, the name of a plain in the department of Vienne, which is part of the ancient province of Poitou, in France. The Huguenots had been greatly discouraged in 1569 by their defeat at the battle of Jarnac, on the River Charente, south-west of Moncontour, on the 13th March. Their great leader, the Prince of Condé, had been killed in it. They had, however, retreated in good order, under Admiral Coligny, and were soon reassured by the King of Navarre coming to their camp with his son Henry, afterwards Henry IV., and the young Prince of Condé,—and young Henry of Navarre was proclaimed their general-in-chief, under the guidance of Admiral Coligny. In the autumn (October 3) they were once more dispirited by the vigour of the Catholic army under the Duke of Anjou, and clamoured for battle to end their miseries either by death or victory. Coligny, therefore, unwillingly, halted, and the battle of Moncontour was fought, resulting in the defeat of the Huguenots with the loss of 10,000 men. The ballad is supposed to be recited by a Huguenot in lament over the calamity that had befallen his cause. *Valois.*—The Duke of Anjou was brother of the King, Charles IX. (1560—1574), who was of the royal house of Valois. *The Renegade's shame.*—"Few persons of quality, especially of the French, were slain, because the chief heads fled betimes, for their own safety." *Davila's Historie of the Civill Wars in France. London* 1647.—*Spearmen of Uri.*—A Roman Catholic canton of Switzerland. "In each battalion (division of the army) there were squadrons of Swisses." *Davila. The Shavelings of Rome.*—Monks and friars, for whom the king's army were in reality fighting. Called shavelings from their tonsure, or shaved crowns. *The Serpent of Florence.*—The queen mother, Catherine de Medici, daughter of Lorenzo de Medici, Duke of Florence, and widow of Henry II., whom she married in 1533. She now acted as the virtual ruler of France, her son, Charles IX., being a mere puppet in her hands. It was she who, three years later, planned the massacre of St. Bartholomew, with the aid of the Guises. *The Vulture of Spain.*—Philip II., son of Charles V., whose whole life was spent in maintaining war against the Protestants, and in persecuting them to the death whenever he could. *The Guile of Lorraine.*—The House of Guise. The Duke of Guise led one division of the Catholic army at Moncontour. The Duke D'Aumale, another of the Guises, held a command in the second division. The Guises were subtle and determined enemies of the Huguenots. *The blue Pyrenees.*—Moncontour was far to the north of the Pyrenees, but a great many of the Huguenots came from the south, which was, indeed, their stronghold.

LESSONS ON SPECIFIC SUBJECTS.

CHEMISTRY.

NITROGEN AND CARBONIC ACID GAS.

1. NITROGEN GAS constitutes four-fifths, or 79 per cent. by volume,* of the air we breathe. It is found in all plants and animals, and also in coal and some other minerals. Saltpetre, which is the nitrate of potash, and the nitrate of soda, are natural combinations formed by it.

2. The name NITROGEN means the *nitre producer*, and was given from the presence of this gas in saltpetre. AZOTE is another name by which it is known, and was given from the fact that animals died when made to breathe nitrogen. This name comes from the two Greek words—A, *without*, and ZOE, *life*. Animals do not, however, die in it from poisoning, as in the case of some other gases, but from suffocation. Nitrogen is not poisonous; it simply suffocates, as water does, from being unfit for breathing, and excluding the air.

3. Nitrogen enters into the composition of vegetable life everywhere, but there is very little of it in comparison with other substances. In 2,500 lbs. of hay there are 984 lbs. of carbon, and only 32 of nitrogen.

4. Though nitrogen forms four-fifths of the atmosphere, plants do not derive it directly from the air, but absorb it through their roots in the form of *ammonia*, which is a compound of nitrogen and hydrogen. This ammonia is received by plants in solution in water, which drinks it in from the air. Rain and brooks contain it, and by their agency it gets to the roots of vegetation everywhere.

5. Nitrogen also forms part of the bodies of men and the lower animals. It is, with its compounds, the flesh-forming element in their food, and is obtained either from plants, as in the case of animals like the horse; or from the flesh of other animals, as in that of a lion; or from both these sources, as in the case of man.

6. The constant abstraction of ammonia from the atmosphere by plants might be supposed gradually to disturb the proportions of nitrogen in it. This, however, does not happen, so large a quantity being reproduced and given back to the air by the decay and putrefaction of animal and vegetable substances, that the amount of it in the atmosphere is always the same.

7. Nitrogen is prepared in two ways. If nitric acid and raw butcher's meat be put into a retort, and heated, nitrogen is given off, but it is not very pure. A more convenient method is to take the oxygen from a portion of atmospheric air, and thus leave the nitrogen free. Oxygen, as you may remember, is only a fifth part of the air, while nitrogen is four-fifths.

* As distinguished from weight.

8. In order to remove the oxygen, some inflammable substance—such as sulphur, alcohol, or phosphorus—is allowed to burn in a portion of air confined in an inverted jar, till it go out. The substance used must be one which, when united as an oxide with the oxygen, is soluble in water, and this those named are. Alcohol and phosphorus are most convenient to use. Put some of either in a small raised metallic cup, placed in a basin containing some water, or you may set it afloat on the water in a small dish. Then set fire to it, and put over it a bell-glass, which will of course be full of air. If you have used alcohol, the carbon and hydrogen in it will now rapidly unite with the oxygen of the air within the glass, and form carbonic acid and water, which are immediately absorbed or dissolved in the water within the bottom of the glass. As soon as the alcohol ceases to burn the water will begin to rise in the jar, and it will gradually fill a fifth part of it, taking the place of the oxygen which has united with the alcohol to form water and carbonic acid. The gas which remains is nitrogen. The nitrogen thus obtained by burning alcohol is not, however, always quite pure, though it is colourless, for the spirit sometimes ceases to burn before the oxygen is exhausted. Phosphorus, on the other hand, entirely removes the oxygen, but if it be used, the jar must remain undisturbed till the white fumes caused by the combustion have been absorbed by the water.

Another way of obtaining nitrogen is by passing a slow stream of air over copper shavings heated to redness in a tube of hard glass. The copper absorbs the oxygen, and sets the nitrogen free.

Nitrogen may also be very readily made by heating 16 grammes of potassic nitrite with 10 grammes of ammonic chloride, dissolved in about 50 cubic centimetres of water.

Nitrogen has neither smell, colour, nor taste; it neither supports combustion, nor does it burn; it cannot sustain respiration, and it has no effect on colouring matter. A lighted candle dipped into nitrogen at once goes out.

Yet, though it will not burn when by itself, it is slightly inflammable when mixed with hydrogen. Nitrogen is one thirty-sixth part lighter than common air.

CARBONIC ACID GAS.

1. This gas, like oxygen and hydrogen, has no colour, and is consequently invisible; but, unlike them, it has a perceptibly sharp sour taste, and a slight smell.

Its smell may be observed by holding the nose over soda-water, or a seidlitz powder, when they are effervescing, and thus allowing the gas to escape. Its taste is most readily felt by drinking some cold water which has been saturated with it by shaking briskly a corked bottle, filled half with water and half with the gas. The gas will be immediately absorbed by the water.

2. Carbonic acid gas extinguishes flame, and animals die if made to breathe it. It is about half as heavy again as air, and it may therefore be poured from one vessel to another, or poured out of a jar on a lighted candle, which it will at once put out. Its weight also causes it to collect below common air, and hence, when formed naturally, it is always found in a layer extending from the ground upwards, so that a man lying on the ground may perish where one standing erect would be unharmed.

3. Water dissolves its own bulk of this gas, and gains a sparkling appearance and a slightly stimulating taste, from its presence. The effervescence of soda water is caused by the escape of carbonic acid, which has been forced into it under heavy pressure. A quantity of the gas, say a gallon, is compressed into half a gallon, and, to this, half a gallon of water is added, which at once absorbs the whole of the gas; for water absorbs its own volume of the gas, however compressed. The saturated water is now "soda-water," and is strongly corked and wired to prevent the gas forcing its way out. When the cork is withdrawn, and the extra pressure thus removed, the compressed half-gallon of gas rushes out in bubbles, and causes the effervescence we have all seen.

Wines which effervesce do so from carbonic acid formed in them during fermentation.

4. Carbonic acid, when passed through lime-water—that is, through water in which lime has been slaked, and well stirred, but which has afterwards settled and grown clear again—makes it milky or cloudy. This is owing to the union of the gas with particles of lime held in solution in the water, which now form *carbonate of lime*, or chalk.

Carbonic acid becomes a liquid when put under a pressure of sixty atmospheres, or about 850 lbs. on a square inch. It is usually condensed by a powerful pump into a strong wrought-iron bottle, on which cold water is kept running. When the liquid is permitted to escape through a jet, part of it instantly passes into gas again, and the cold caused by this rapid evaporation freezes the rest of the liquid, which then forms a snow-white, flaky solid, which evaporates much less quickly. By the evaporation of this substance, mixed with ether, in a vacuum, the very low temperature of —110 has been produced.

5. This gas, though death follows immersion in it, does not act, like nitrogen, by simply keeping away oxygen, and thus causing suffocation; it actually poisons. Air containing so little of it that flame burns in it will nevertheless extinguish life, if breathed for a sufficiently long time. How necessary, then, to avoid the vitiation of the air we breathe by imperfect ventilation! Many deaths occur in France from the habit of using braziers with red-hot charcoal to heat rooms in winter. The carbonic acid given off gradually accumulates, till insensibility and death result. All fires ought to be connected with chimneys, that the gases formed during combustion may be carried out to the open air.

6. The difference between the action of carbonic gas and nitrogen is also marked. If a lighted candle with a long wick be dipped into the former, even the wick will be at once totally extinguished; whereas, if it had been dipped into nitrogen, the wick would have remained red-hot, and would have broken into flame again if immersed in oxygen. Nitrogen puts out a flame simply by cutting off the necessary supply of oxygen, but a candle will go out if put into a mixture of four parts of carbonic acid and one of oxygen, though this fifth part of the latter gas is as large a proportion as there is in the atmosphere.

7. The softening of hard water by boiling is caused by the heat setting free carbonic acid gas, which holds lime in solution in the water. This lime, falling to the bottom, forms the cakes of stony matter we so often see in kettles and boilers.

Fermentation produces carbonic acid in many cases, and hence a candle lowered towards the surface of beer fermenting in a brewer's vat, will go out, and lime-water will become cloudy by the action of the gas on it.

8. Carbonic acid is largely formed in the body of animals by the action of the oxygen they breathe on the waste particles of the blood, and is given off in respiration. In proof of this, if you breathe through a tube into lime-water for a few minutes, the carbonic acid will cause the lime in the water to fall in cloudy white chalk.

Carbon is one of the main sources of the nourishment of plants, but as it cannot be dissolved in water in its simple form, it cannot be absorbed in that form by plants, since the cells absorb only dissolved substances. All the carbon found in plants must, consequently, have entered them in a form soluble in water, and this we find in *carbonic acid*, which consists of carbon and oxygen.

9. A part of this carbonic acid is derived from decaying animal and vegetable matter in the soil. But plants of some kinds thrive on mere sand, and cresses and hyacinths grow in pure water. It is, besides, to be noted, that the ground cannot yield all the carbon consumed by plants, since, notwithstanding the vast amount absorbed by the grain of each harvest, it is never necessary to make up this loss to the soil again. The air is the great magazine from which plants derive carbon, for though there be only two parts of carbonic acid gas in 5,000 of the atmosphere, the extent of the air is so boundless, that it contains at least 8,440 billions of pounds of it, a quantity more than enough to nourish all the vegetation spread over the whole surface of the earth.

10. This gas is absorbed by plants from the air, partly through their stomata or mouths, but more largely through their roots, in solution in water, which absorbs it readily. That the leaves absorb a large quantity is certain, for green leaves shut in with air containing carbonic acid will drink it all into their structure. But the leaves after all absorb much less of it than the roots.

11. It might be feared that the constant abstraction of so much of this gas from the air by plants would, in the end, make a sensible difference in the quantity left. But if we remember that the breath of all living creatures, the processes of combustion and decay, and the perpetual outbursts of volcanic action, produce great quantities of it constantly, it will be seen how the wonderful fact may be explained that the quantity in the atmosphere is always the same. There is an unceasing process of absorption of carbonic acid by plants on the one hand, all over the world, and on the other a production of it to meet their wants. That they should thus absorb it is necessary for the preservation of the atmosphere in the condition required for human and animal life.

12. Carbonic acid is composed of two parts of oxygen and one of carbon, or charcoal. It constitutes, as we have seen, a 2,500th part of the atmosphere, and abounds in limestone, marble, shells, corals, &c. In many parts it issues from the earth, in large quantities, and it often rushes from the face of workings in mines, destroying all life which cannot escape from it. It is to be found in all water, and it is given off by plants during darkness, and by animals in breathing. Fermentation and animal decay produce it abundantly, and it is a product of all combustion.

13. Carbonic acid may be prepared by putting pieces of broken marble in a glass retort, with sufficient water to cover them, and then adding a little muriatic acid. Another way is to suspend a well-kindled piece of charcoal, by a wire, in a jar of oxygen, which is thus changed into an equal quantity of carbonic acid gas, for a gallon of oxygen thus transformed makes exactly a gallon of carbonic acid. Its weight is increased, however, by three-fourths, as you may readily understand, from the absorption of so much carbon.

Carbonic acid is also called Carbonic Dioxide—or double oxide—from its consisting of two parts of oxygen to one of carbon.

DISTINCTIONS BETWEEN METALS AND NON-METALS.

1. Of the sixty-three elementary or simple bodies known, fifty are commonly reckoned metallic, and it is very probable that other metals will yet be discovered. Many are, however, rare, some very rare.

2. The distinctions between a metal and a non-metallic body are entirely artificial. They are four in number, but are seen, as a rule, only in masses of metal, and only in a faint degree, if at all, if the metals be reduced to powder.

3. One distinction is that metals are excellent conductors of electricity, as is seen in their use in lightning conductors, and electric telegraph wires and cables, through which the spark flashes with the speed of lightning.

4. A second distinction is that they are admirable conductors of heat. Indeed they are the best of all; no non-metallic substances approaching their power in this respect.

5. A third distinction is, that metals are deposited at the negative pole of an electric battery when a compound of any of them is decomposed by electricity. Yet while all metals have this characteristic, there are several substances, such as hydrogen, which have it also.

6. The fourth distinction is, that metals are powerful reflectors of light, as we know by constant experience. Our mirrors are reflectors formed by a thin coating of metal (mercury) on glass, and every one is familiar with the lustre of gold, silver, burnished brass, &c. There are certain other minerals, however, non-metallic, which are almost as brilliant as metals.

COMBINATION BY WEIGHT AND VOLUME.

I.—Weights and Measures, &c.

1. The weights and measures used in chemistry are those of the metric system, which are wonderfully simple compared to any others. They have the great additional advantage of being used by scientific men all over the world, so that there is no need to waste time and labour in changing those of one country to the equivalents used in another.

2. In this system, the Metre, from which the Measures of Length are calculated up and down, is equal to 39·37 English inches. The *shorter* measures are a 10th of a metre, a 100th, or 1,000th; the longer measures, are 10 metres, 100 metres and 1,000 metres. For the measures shorter than a metre, that is its subdivisions, Latin prefixes are used—*deci* (for *decem*) meaning a 10th, *centi* (for *centum*) a 100th, and *milli* (for *mille*) a 1,000th; so that the tenth of a Metre is called a *deci-metre*, the hundredth of a metre a *centi-metre*, and the thousandth of a metre, a *milli-metre*.

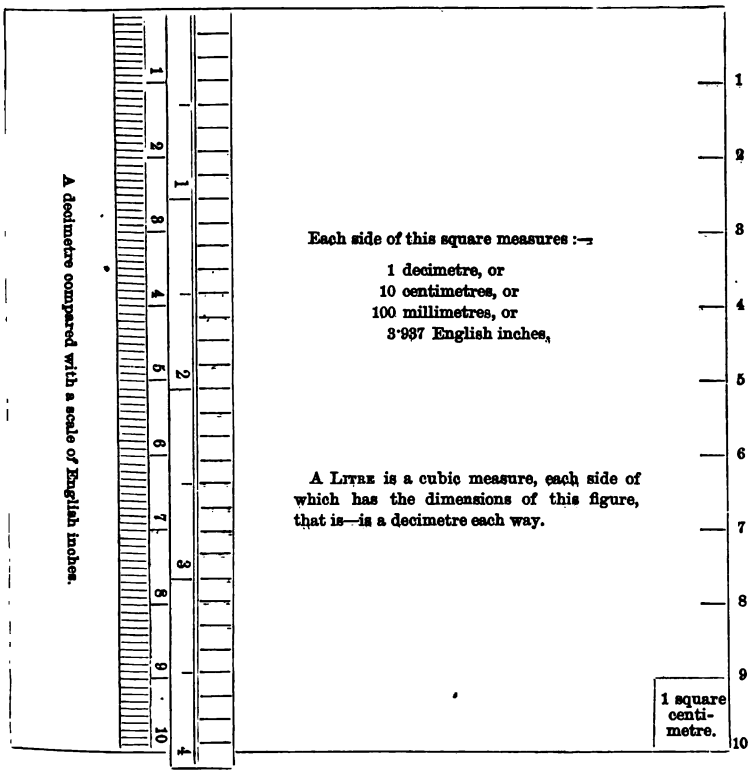
3. The measures *above* a metre in length have Greek prefixes—*deca*, ten; *hecto* (for *hecaton*), 100; and *kilo* for (*kilioi*, or *chilioi*), 1,000. The whole table of measures of length is, hence—

A kilometre, equal to	1093·63 yards	1000	metres
A hectometre	109·36 „	100	„
A decametre	10·93 „	10	„
A Metre (m)	1·09 „	1	„
A decimetre	3·93 inches, $\frac{1}{10}$th, or	0·1	„
A centimetre (cm)	$\frac{1}{100}$th, or	0·01	„
A millimetre (mm)	$\frac{1}{1000}$th, or	0·001	„

4. The Measures of Volume are based on subdivisions of the Litre into tenths, and multiples of it by tens, thus:—

Kilolitre, 220·0 gallons, equal to	1000	litres
Hectolitre, 22·00 „ „	100	„
Decalitre, 2·20 „ „	10	„
Litre, 1·76 pint	1	„
Decilitre, 6·10 cubic inches, $\frac{1}{10}$th, or	0·1	„
Centilitre, $\frac{1}{100}$th, or	0·01	„
Millilitre (or cubic centimetre) (cc.) $\frac{1}{1000}$th, or	0·001	„

A LITRE is equal to 1.76 English pints.


A decimetre compared with a scale of English inches.
Each side of this square measures :—
1 decimetre, or
10 centimetres, or
100 millimetres, or
3·937 English inches.
A LITRE is a cubic measure, each side of which has the dimensions of this figure, that is—is a decimetre each way.
1 square centi-metre.

5. THE MEASURES OF WEIGHT are based on the GRAMME, which is equal to 15·432 grains. The table is as follows:—

A kilogramme, 2·20 lb.	is equal to	1000	grammes
A hectogramme, 3·21 troy oz.	,,	100	,,
A decagramme, 154·32 grains	,,	10	,,
A gramme (grm) 15·43	,, ,,	1	,,
A decigramme, 1·54 grains, $\frac{1}{10}$th, or		0·1	,,
A centigramme, $\frac{1}{100}$th, or		0·01	,,
A milligramme, $\frac{1}{1000}$th, or		0·001	,,

The temperature of substances to be weighed or measured is of great importance in Chemistry, and is generally reckoned by the Centigrade

thermometer. The following is a comparative table of the scale of the Centigrade and that of Fahrenheit's thermometer.

C.	F.	C.	F.	C.	F.	C.	F.
—20°	— 4°	15°	59°	45°	113°	75°	167°
—15	+ 5	20	68	50	122	80	176
—10	14	25	77	55	131	85	185
— 5	23	30	86	60	140	90	194
0	**32**	35	95	65	149	95	203
5	41	40	104	70	158	**100**	**212**
10	50						

II.—Chemical Combination.

1. We all know what it is to mix two or more substances together, and, indeed, come in contact with such mixtures at every turn, in the details of common life. But *chemical combination* is very different from mere *mixture*. The salt and pepper on our dinner-tables, for instance, sometimes get mixed, but each of the two still retains its own properties, so that the taste of the mixture is partly that of the one, partly that of the other. We may, moreover, mix them in any proportions we please, as, indeed, the cook does in seasoning her dishes. The particles of each, moreover, remain just as they were, the salt is still salt, and the pepper, pepper. And though perhaps in this case it would be difficult to separate the substances again, yet in the case of most mixtures it is possible to do so, and to bring them back to their original distinctions, just as they were before. For instance, when yellow ochre is mixed with water, to make the walls of an outhouse clean and tidy, the ochre needs to be stirred up continually to keep it from separating of its own accord, and if the pail in which the mixture has been made be left alone for a time, the water will all pass off in vapour by the heat of the sun and the ochre will remain at the bottom. Mixtures are only *mechanical* combinations, then, not real union of the substances composing them.

2. Chemical Combinations are quite different. When they take place the substances which are brought together lose their form and make other substances, different in appearance and properties. They are no longer distinct, but become lost one in the other, so that they need new names, and would not be suspected to be composed as they are.

Thus, for example, chemists can take two gases, oxygen and hydrogen, and change them into water, by exploding them when mixed. If you slake a piece of lime in a pail of water and having let the water settle till it be perfectly clear, then draw it off, you might fancy that it was just the same as it had been. But, instead of being so, you will find, if you cause some carbonic acid gas to pass through it, that it has entered into chemical combination with a part of the lime, for the gas will make it cloudy by separating this lime from it, and the bottom of the glass in which it stands will soon be covered with white chalk.

3. This property of chemical combination, or chemical affinity, as it is often called, is not universal, for some substances, as for instance fluorine and oxygen, have never been made to combine with each other, and have never been found in combination.

Some substances, moreover, have a great affinity for some others, and less affinity, or none, for all besides, as if they had their likings and aversions, as we ourselves have. Thus, chlorine has a great affinity for hydrogen, and some of the metals, such as calcium, potassium, and sodium have so great an affinity for oxygen, that, if you let them touch water, they will at once take all the oxygen out of it, and unite with it so violently as to catch fire.

4. No merely mechanical means will separate bodies chemically combined. Marble, for instance, consists of three bodies, carbon, oxygen, and calcium; but you may grind a piece of it into the finest dust, and yet each particle of the dust will be as truly marble as the whole piece was. It needs chemical power to separate the elements of which the whole consists, and this is found in the effects of heat. When made brightly red-hot, the carbon, and part of the oxygen, are driven off as a compound gas, and the calcium, and the rest of the oxygen, remain behind, in the form of lime. By taking still further trouble, the chemist can make the separation of all three elements complete, and by taking away the oxygen, leave only the metal calcium. But you see that even by heat alone, two new compound bodies were formed out of the original one—the marble.

In the same way, as you already know, oxygen and hydrogen remain unchanged and only *mixed*, till a spark, by exploding them, brings into play a new chemical force which changes them into water.

5. It is the same with gunpowder, which is a mixture of nitre, charcoal, and sulphur, each, first, ground very fine, and the three then blended thoroughly together. Yet, however finely ground and thoroughly mixed, the particles of each substance remain unchanged, and can even be seen, if a grain of the powder be examined under a microscope. There is no chemical combination. But, if a spark fall on the mixture you know what follows: there is a flash, and a cloud of smoke, and the powder is gone. It has changed into new substances, several of which are gases, and none are in any way like the powder itself.

Among the effects of chemical combination a very striking one is seen in the change of colour it often causes. Bright red vermilion colour is produced by heating yellow sulphur and white quicksilver together, and the union of black charcoal with sulphur makes a compound that has no colour at all.

6. The very same elements, moreover, often form, in different combinations, the most dissimilar substances. Thus gum, arrowroot, and sugar, are, all alike, composed of charcoal, hydrogen, and oxygen.

It is the same with the smells of bodies. Many of our finest perfumes

such as oil of bergamot, oil of citron, and otto of roses, are compounds of charcoal and hydrogen, which, themselves, are scentless.

It is to be specially noted that however great the changes effected by new chemical combinations, they *cause no loss of weight.* If, for example, the carbon, &c., given off in the burning of a candle be carefully weighed, it will be found that the whole not only weigh no less, but are heavier, than the candle itself. The oxygen which has been consumed in the burning is the cause of this.

7. Unlike mechanical mixtures, in which the proportions of the compound bodies may be varied at pleasure, those of THE SUBSTANCES ENTERING INTO CHEMICAL COMBINATIONS DO SO ONLY IN FIXED PROPORTIONS. In these and in no others can they be made to unite. This is one of the *fundamental laws* of chemistry, and must be carefully kept in mind.

Thus, water always contains two parts of hydrogen to one part of oxygen: ammonia always contains three parts of hydrogen to one of nitrogen; common salt always contains $35\frac{1}{2}$ parts of chlorine to 23 of sodium; and marble, 40 parts of calcium to 12 of carbon, and 48 of oxygen. Wherever you find them, these substances are always the same; —in these ratios and in no others will their components combine to form them. Water in Australia is the same as in England; common salt is the same in India and Patagonia; ammonia yields the same analysis wherever tested; and a piece of marble from Italy is the same as a piece of marble from the quarries of Nova Scotia.

8. A *second law* of chemical combination is that WHEN ELEMENTS UNITE IN DIFFERENT PROPORTIONS, THE HIGHER PROPORTIONS ARE ALWAYS MULTIPLES OF THE FIRST OR LOWEST.

In the five oxides of nitrogen we have an excellent illustration of this law. The proportion of nitrogen is the same in them all.

NITROUS OXIDE contains in every 44 parts, 28 of nitrogen and 16 of oxygen, or 2 atoms of nitrogen and 1 of oxygen.

NITRIC OXIDE, in every 60 parts contains 28 of nitrogen and 32 of oxygen, or 2 of nitrogen and 2 of oxygen.

NITROUS ANHYDRIDE contains in every 76 parts, 28 of nitrogen and 48 of oxygen, or 2 atoms of nitrogen and 3 of oxygen.

NITROGEN PEROXIDE, in every 92 parts contains 28 of nitrogen and 64 of oxygen, or 2 atoms of nitrogen and 4 of oxygen.

NITRIC ANHYDRIDE, in every 108 parts, contains 28 of nitrogen and 80 of oxygen, or 2 atoms of nitrogen and 5 of oxygen.

The proportions of oxygen in all these cases will be found to be the multiples of 16—by 2 = 32; by 3 = 48; by 4 = 64; and 5 by = 80.

The law is universal. If a substance combine with more than 16 parts of oxygen, the quantity must be 32 parts, and if it go beyond 32 the next quantity must be 48, and, if it go beyond that, the next must be 64.

These are the two laws of most importance for beginners in Chemistry.

III.—Atoms, Atomic Weight, and Molecules.

1. In all books on Chemistry, the words ATOM, ATOMIC WEIGHT, and MOLECULE constantly occur, and must be explained if the student is to understand what he reads.

Chemists assume that all elementary bodies are composed of very small and invisible particles which are called ATOMS, from the Greek word *atomos —that which cannot be divided*, and these atoms are assumed to be of different weights in different elements. This is, of course, so far, only a theory, for no one ever saw an atom or separated a substance into atoms. Yet it is a theory which accords so well with facts that it has been received by all scientific men since the days of its first publication by Dr. Dalton.

2. The difference in weight of the different kinds of atoms is supposed to account for the different powers of combination they show, all compounds being only the union of atom with atom. All atoms of any one element are supposed, however, to be always exactly alike both in size and weight.

3. It is by the aid of this theory that chemists determine the relative weights of elementary bodies and their compounds. Hydrogen, which combines in the proportion of two parts, or the multiples of two, with other bodies, is taken as the unit, and the weight of other substances is estimated by the difference between their power of combination and those of this gas.

4. Calling hydrogen 1, the weight of oxygen is 16, because the combining proportion of oxygen is 16 times greater than that of hydrogen. Hence the weight of an atom of oxygen is assumed to be 16 times that of an atom of hydrogen. Twelve parts of carbon are the smallest proportion that can exist in a compound, and therefore an atom of carbon is assumed to be 12 times heavier than one of hydrogen. Chlorine has for its lowest combining proportion 35·5, and therefore this is assumed to be the weight of an atom of it. Iron has a combining proportion of 56, and therefore this is taken as the weight of an atom of iron. The atom of sulphur, in the same way, is 32 times heavier than that of hydrogen, and that of nitrogen 14.

5. The term MOLECULE is given to the smallest quantity of an elementary substance which is supposed to be capable of existing in a separate form, just as an atom is the name given to the smallest indivisible particle of each element which can exist in a compound, united with other particles either of the same element or of some other. *Molecule* has, therefore, to do with *volume*, or *bulk*, just as atom had to do with *weight*.

6. The volume of the molecule of a compound body in the form of gas is exactly double the volume of the atom of hydrogen: thus

Gases combine in very simple proportions. Thus this combination by volume takes place—as in the case of chlorine and hydrogen in the proportion of 1 to 1, as in oxygen and hydrogen in that of 1 to 2, or as in the case of nitrogen in that of 1 to 3.

7. The atomic *volume* of gases and vapours is calculated from their respective specific gravity as compared with that of hydrogen or atmospheric air. The atomic *weight* of a gas or vapour is the weight of a volume of any one in particular, equal to the volume of any quantity of hydrogen the weight of which is taken as unity. The atomic volume of a body is the space occupied by a quantity of it proportional to its atomic weight.

All this may not be very clear, but it is not possible to make it simpler without going into too lengthy explanations. The whole subject must be studied after a considerable progress in chemistry has been made, to be easily intelligible.

8. Specific Gravity is the name given to the weight of an equal volume of one substance in comparison with that of some other.

If we weigh one gramme of sponge, and compare its bulk with that of the weight itself, in the opposite scale, the sponge will, of course, be very much the larger. In the same way a piece of sponge just the size of the weight will be very much lighter than it.

9. It would evidently be inconvenient, if always possible, to ascertain the comparative size of equal weights of a substance, and it is much more simple to test the comparative weight of equal sizes of it. To do this, some one substance must be chosen as the standard by which to ascertain the comparative weight of equal bulks of other substances.

10. Water is universally accepted as this standard for all liquids and solids, and atmospheric air or hydrogen is taken as that for gases and vapours. The weight of any body compared with these standards is called its "specific gravity," or its *density*, which is the preferable expression.

11. The density or specific gravity of a gas is ascertained by a very simple means. A large glass globe, furnished with a stopcock, is weighed when full of dry air. It is then thoroughly exhausted by an air-pump and weighed again. Its weight now, when empty, is next subtracted from its weight when full of air, and thus the weight of the air it contained is ascertained.

It is now filled with the gas to be weighed, and when the weight of the empty glass is taken from the result, we have the clear weight of the gas. The volume of air and of gas must, of course, have been the same, and thus we know how much the one was more or less than the other. It is necessary, however, to see that the pressure of the air, as shown by the barometer, and the heat as shown by the thermometer, be the same throughout.

12. To ascertain the specific gravity of *liquids* all that is necessary is to

take a dish of any convenient size, the weight of which we know, and find out how much heavier or lighter it is, first, when filled with water, and second when filled with the liquid to be weighed, the liquid being of the same temperature as the water.

13. The specific gravity of *solids* is ascertained by taking advantage of the law of liquids, "that a solid immersed in a liquid loses a weight equal to the weight of an equal volume of the liquid." It is, hence, only necessary to weigh a piece of the solid in the air, and then put it in water and weigh it again there.

CHEMICAL SYMBOLS AND FORMULÆ.

1. Instead of writing out the names of all substances in their science, in full, chemists have agreed upon a system of chemical notation by which much labour is saved. The first letter of the Latin name of each substance is taken as its *chemical symbol*, except where there are two or more elements beginning with the same letter, in which case the second letter of each name is added to the first. Thus F stands for Fluorine; Fe for Iron, from Ferrum, the Latin word for it; S for Sulphur; K for Potassium from Kalium, its Latin name; Na for Sodium, from Natron, its Latin name; and Pb, not L, for Lead, from its Latin name, Plumbum.

Remember that when the first letter of two names is the same, a distinction is made by means of the second: thus the symbol of Carbon is C, of Chlorine, Cl; of Copper, Cu (from Cuprum), and so on.

2. These letters or symbols represent the weight of the smallest quantity of the element for which they stand, which can enter into combination with another element, and thus they serve a double purpose. For example, the symbol H always stands for 1 part, by weight, of hydrogen, O for 16 parts, by weight, of oxygen, C for 12 parts of carbon, S for 32 parts of sulphur, and so on; these being the smallest number of parts of each of these elements which can exist in a compound. They represent the *atomic weights* of the elements, each element being supposed, as we have seen, to consist of atoms of exactly the same size and weight in the same body. If hydrogen be taken as 1 these figures thus show the weight of the substances to which they are affixed, compared to that of the atom of hydrogen.

3. Compound substances are represented by placing the symbols of the elements of which they consist, together. Thus C O stands for the molecule of carbonic protoxide, a compound substance consisting of single atoms of carbon and oxygen: Pb and O for a compound of single atoms of lead and oxygen. This combination of symbols is called a FORMULA.

When more than two substances unite to form a compound, the symbols of each are given, but it is not necessary to illustrate this here.

The following is a Table of the

ELEMENTS, WITH THEIR SYMBOLS AND ATOMIC WEIGHT.

Each line should be read thus: "The *aluminium* atom is represented by the symbol Al, and weighs 27·5 times as much as the hydrogen atom."

Name of Element.	Atomic Symbol.	Atomic Weight.	Name of Element.	Atomic Symbol.	Atomic Weight.
Aluminium ...	Al	27·5	*Molybdenum* ...	Mo	96·
Antimony (Stibium)	Sb	122·	Nickel	Ni	59·
Arsenic	As	75·	*Niobium*	Nb	94·
Barium	Ba	137·	Nitrogen ...	N	14·
Bismuth	Bi	210·	*Osmium*	Os	199·
Boron	B	11·	Oxygen	O	16·
Bromine	Br	80·	*Palladium* ...	Pd	106·5
Cadmium	Cd	112·	Phosphorus ...	P	31·
Cæsium	Cs	133·	Platinum ...	Pt	197·
Calcium	Ca	40·	Potassium (Kalium)	K	39·
Carbon	C	12·	*Rhodium*	Ro	104·
Cerium	Ce	92·	*Rubidium*	Rb	85·
Chlorine	Cl	35·5	*Ruthenium* ...	Ru	104·
Chromium ...	Cr	52·5	*Selenium*	Se	79·5
Cobalt	Co	59·	Silicium or Silicon	Si	28·
Copper (Cuprum)	Cu	63·5	Silver (Argentum)	Ag	108·
Didymium ...	D	96·	Sodium (Natrium)	Na	23·
Erbium	E	112·	*Strontium*	Sr	87·5
Fluorine	F	19·	Sulphur	S	32·
Glucinum	G	9·5	*Tantalum* or *Columbium*	Ta	182·
Gold (Aurum) ...	Au	197·	*Tellurium* ...	Te	129·
Hydrogen ...	H	1·	*Thallium*	Tl	204·
Indium	In	76·	*Thorium*	Th	238·
Iodine	I	127·	Tin (Stannum) ...	Sn	118·
Iridium	Ir	197·	*Titanium* ...	Ti	50·
Iron (Ferrum) ...	Fe	56·	*Tungsten* (Wolfram)	W	184·
Lanthanum ...	La	92·	*Uranium*	U	120·
Lead (Plumbum)	Pb	207·	*Vanadium* ...	V	51·25
Lithium	Li	7·	*Yttrium*	Y	62·
Magnesium ...	Mg	24·5	Zinc	Zn	65·
Manganese ...	Mn	55·	*Zirconium* ...	Zr	89·5
Mercury (Hydrargyrus)	Hg	200·			

Those in italics are rare and are not used to any extent in arts or manufactures.

SPECIFIC HEAT.

1. When we heat equal weights of different substances, we find that the amount of heat required to produce an equal temperature varies in the case of each. Some have a greater *specific or special capacity* for heat. It is this peculiarity which is meant by the shorter expression *specific heat*. The greater the capacity for heat, that is, the more heat it takes to pro-

duce a given result, the greater the specific heat—the less heat required, the less the specific heat, of any body.

2. Illustrations of the different specific heat of different substances may be found on every hand. Thus if you take equal quantities of water, oil of turpentine, iron, and mercury, at the same temperature, and apply an equal amount of heat to each, you will find that the turpentine will grow twice as hot, the iron eight times as hot, and the mercury thirty-three times as hot in the same time, as the water does.

3. If, again, you try to melt ice with equal quantities of different bodies which have all been heated to the same point, you will find that much less will be melted by some of them than by others. A pound of any of the substances just named, will have much less effect than a pound of hot water—though the heat of each when brought in contact with the ice has been the same. The reason, of course, is, that, as they required much less heat than water does to raise them to any given temperature, they have just so much the less to give away. For the same reason some bodies cool much more quickly than others of the same temperature. If two vessels, one with mercury, the other with water, be left to cool, the mercury will fall in temperature twice as fast as the water.

4. If we take two given weights of water at different temperatures and pour them together, the heat of the whole will be just the mean, or middle, heat between that of each. Thus a pint of water at 200°, mixed with a pint at 100°, would give us two pints at 150°. The colder water would gain and the warmer would lose 50° of heat. It is the same when we mix two portions of the same liquid, whatever it may be.

5. But if we mingle a pound of mercury at 160° with a pound of water at 40°, the temperature of the compound will not be the mean or middle of the combined heat, as it would have been had mercury been mingled with mercury, or water with water. Instead of $160° + 40° = 200 \div 2 = 100°$ for the whole, it will be only 45°, the mercury having lost 115° and yet having heated the water only 5°. If, on the other hand, we mingle a pound of water at 160° with a pound of mercury at 40°, the whole will show a heat of 155°, the 5° lost by the water having heated the mercury 115°.

Thus the same amount of heat exhibits a higher intensity when contained in quicksilver than when contained in water.

The specific heat of solids is most easily ascertained by heating them to a given point, and then plunging them into water or any liquid at a lower temperature.

6. The standard chosen for the comparison of the specific heat of different bodies is water, which has a greater capacity for heat than any other body. Weight rather than measure is used in the comparison, and water being fixed as equivalent in specific heat to 1000, the specific heat of other substances is expressed by some lower figures, according to the facts in each case.

The following is a table of the specific heat of various substances :—

Substances.	Specific Heat of equal Weights.
Water	1·000
Ice	·513
Wood Charcoal	·241
Sulphur	·208
Glass	·198
Diamond	·147
Iron	·1138
Copper	·09515
Silver	·05701
Iodine	·05412
Gold	·03244
Mercury	·03333

8. The great amount of heat required to raise the temperature of water has the effect of keeping the sea at a comparatively equal degree of heat all round the year. It cannot be suddenly raised in temperature to any great extent, and, thus, life, both animal and vegetable, is not exposed to the fatal results which must follow if it were otherwise. If it rose in warmth as easily as mercury, the dry land would be speedily turned into a lifeless desert.

From the same cause, the sea is of the greatest use in tempering the cold of the land. It cools so slowly, and gives off so much heat as it does so, that the air is warmed by it, and abates the rigour of winter in the regions over which it passes. It is from this reason that an island is always so much more temperate than a continental country, in the cold latitudes. Britain has a much milder climate than the parts of Europe equally far north, and Vancouver's Island is very much milder than the land on the Continent near it.

9. The specific heat of equal weights of different substances, as we have seen, varies greatly; but if instead of taking equal weights we substitute quantities, proportioned to the respective atomic weight of bodies, the striking fact is brought to light that the amount of heat these bodies are capable of receiving, is identical, when their atomic weight is kept in view in the quantities employed. Thus the table already given, shows that the atomic weight of sulphur is thirty-two, and that of iron fifty-six. If, now, thirty-two parts of sulphur, and fifty-six parts of iron, be heated to the same degree, and then put into the same quantity of water, say at the freezing point, the thirty-two parts of sulphur and the fifty-six parts of iron, will each raise the heat of the water to the same extent, and it is the same with other substances treated in the same way. Thus, atom for atom, all bodies have the same capacity for heat, though, weight for weight, that capacity varies.

THE BLACK PRINCE.—*Dean Stanley.*

THE thought which we most naturally connect with the name of the Black Prince, is the wars of the English and French—the victories of England over France. Out of those wars much noble feeling sprung,—feelings of chivalry and courtesy and respect to our enemies, and (perhaps a doubtful boon) of unshaken confidence in ourselves. Such feelings are amongst our most precious inheritances, and all honour be to him who first inspired them into the hearts of his countrymen, never to be again extinct. But it is a matter of still greater thankfulness to remember, as we look at the worn-out armour of the Black Prince, that those wars of English conquest are buried with him, never to be revived. Other wars may arise in the unknown future still before us—but such wars as he and his father waged, we shall, we may thankfully hope, see no more again for ever. We shall never again see a King of England, or a Prince of Wales, taking advantage of a legal quibble to conquer a great neighbouring country, and laying waste with fire and sword a civilised kingdom, from mere self-aggrandisement. We have seen how, on the eve of the battle of Poitiers, one good man with a patience and charity truly heroic did strive by all that Christian wisdom and forbearance could urge, to stop that unhallowed warfare. It is a satisfaction to think that his wish is accomplished; that what he laboured to effect almost as a hopeless project, has now well-nigh become the law of the civilised world. It is true, that the wars of Edward III. and the Black Prince were renewed again on a more frightful scale in the next century, renewed at the instigation of an Archbishop of Canterbury, who strove thus to avert the storm which seemed to him to be threatening the Church: but these were the last, and the tomb and college of Chichele are themselves lasting monuments of the deep remorse for his sin, which smote his declining years. With him finished the last trace of those bloody wars: may nothing ever arise, in our time

The Black Prince, from his Tomb in Canterbury Cathedral.

or our children's, to break the bond of peace between England and France, which is the bond of the peace of the world.

Secondly, he brings before us all that is most characteristic of the ages of chivalry. You have heard of his courtesy, his reverence to age and authority, his generosity to his fallen enemy. But I must in justice remind you, that the evil as well as the good of chivalry was seen in him, and that this evil, like that which I spoke of just now, is also, I trust, buried with him. One single instance will show what I mean. In those disastrous years which ushered in the close of his life, a rebellion arose in his French province of Gascony, provoked by his wasteful expenditure. One of the chief towns where the insurgents held out, was Limoges. The Prince, though then labouring under his fatal illness, besieged and took it; and as soon as it was taken, he gave orders that his soldiers should massacre every one that they found; whilst he himself, too ill to walk or ride, was carried through the streets in a litter, looking on at the carnage. Men, women, and children, threw themselves on their knees, as he passed on through the devoted city, crying "Mercy, mercy;" but he went on relentlessly, and the massacre went on, till, struck by the gallantry of three French knights, whom he saw fighting in one of the squares against fearful odds, he ordered it to cease. Now, for this dreadful scene there were doubtless many excuses—the irritation of illness, the affection for his father, whose dignity he thought outraged by so determined a resistance, and the indignation against the ingratitude of a city on which he had bestowed many favours. But what is especially to be observed, is not so much the cruelty of the individual man as the great imperfection of that kind of virtue which could allow of such

The Black Prince, from an ancient painting.

cruelty. Dreadful as this scene seems to us, to men of that time it seemed quite natural. The poet who recorded it, had nothing more to say concerning it, than that:—

"All the townsmen were taken or slain
By the noble Prince of price;
Whereat great joy had all around,
Those who were his friends;
And his enemies were
Sorely grieved, and repented
That they had begun the war against him."

This strange contradiction arose from one single cause. The Black Prince, and those who looked up to him as their pattern, chivalrous, kind, and generous as they were to their equals, and to their immediate dependants, had no sense of what was due to the poor, to the middle, and the humbler classes generally. He could be touched by the sight of a captive king, or at the gallantry of the three French gentlemen; but he had no ears to hear, no eyes to see, the cries and groans of the fathers, and mothers, and children, of the poorer citizens, who were not bound to him by the laws of honour and of knighthood. It is for us to remember, as we stand by his grave, that whilst he has left us the legacy of those noble and beautiful feelings, which are the charm and best ornaments of life, though not its most necessary virtues, it is our further privilege and duty to extend those feelings towards the classes on which he never cast a thought; to have towards *all* classes of society, and to make them have towards each other, and towards ourselves, the high respect, the courtesy, and kindness, which were then peculiar to one class only.

It is a well-known saying in Shakspeare, that—

"The evil that men do lives after them;
The good is oft interred with their bones."—

But it is often, happily, just the reverse, and so it was with the Black Prince.

He was the first great English captain, who showed what English soldiers were, and what they could do against Frenchmen, and against all the world. He was the first English prince who showed what it was to be a true gentleman. He was the first, but he was not the last. We have seen how, when he died, Englishmen thought that all their hopes had died with him. But we know that it was not so; we know that the life of a great nation is not bound up with the life of a

single man; we know that the valour and the courtesy and the chivalry of England are not buried in the grave of the Plantagenet Prince. It needs only a glance round the country, to see that the high character of an English gentleman, of which the Black Prince was the noble pattern, is still to be found everywhere; and has since his time been spreading itself more and more through classes, which in his time seemed incapable of reaching it. . . . . And not to soldiers only, but to all who are engaged in the long warfare of life, is his conduct an example. To unite in our lives the two qualities expressed in his motto, "Hoch muth" and "Ich dien" ("high spirit" and "reverent service"), is to be, indeed, not only a true gentleman and a true soldier, but a true Christian also. To show to all who differ from us, not only in war but in peace, that delicate forbearance, that fear of hurting another's feelings, that happy art of saying the right thing to the right person, which he showed to the captive king, would indeed add a grace and a charm to the whole course of this troublesome world, such as none can afford to lose, whether high or low. Happy are they who, having this gift by birth or station, use it for its highest purposes; still more happy are they who, having it not by birth or station, have acquired it, as it may be acquired, by Christian gentleness and Christian charity.

And lastly, to act in all the various difficulties of our everyday life with that coolness, and calmness, and faith in a higher power than his own, which he showed when the appalling danger of his situation burst upon him at Poitiers, would smoothe a hundred difficulties and ensure a hundred victories. We often think we have no power in ourselves, no advantages of position, to help us against our many temptations, to overcome the many obstacles we encounter. Let us take our stand by the Black Prince's tomb, and go back once more in thought to the distant fields of France. A slight rise in the wild upland plain, a steep lane through vineyards and underwood, this was all that he had, humanly speaking, on his side; but he turned it to the utmost use of which it could be made, and won the most glorious of battles. So, in like manner, our advantages may be slight—hardly perceptible to any but ourselves—let us turn them to account, and the results will be a hundredfold; we have only to adopt the Black Prince's bold and cheering words, when first he saw his enemies, "*God is my help, I must fight them as best I can;*" adding that lofty yet resigned and humble prayer, which he

uttered when the battle was announced to be inevitable, and which has since become a proverb, "*God defend the right.*"

NOTES.—*The Black Prince.*—Edward, Prince of Wales, son of Edward III., got the name of the Black Prince from the black armour he wore. He himself was fair. He was born at Woodstock in 1330, and died of consumption in 1376, at the age of forty-six. He fought with great gallantry at Crecy, when he was only sixteen. In 1337 King Edward, his father, claimed the Crown of France, in right of his mother, Isabella. She was the daughter of Philip the Fair, King of France (1285-1314), and was affianced to her future husband, Edward II., when she was only six years old. On the death of Philip the Fair's three sons without heirs, Edward III. claimed at least the regency of France, as nephew of the three, his mother being their sister. But the French Salic law, which forbade a queen reigning, was held to prevent a female heiress transmitting rights she did not herself possess. Edward disputed this, and hence rose the great wars with France, which drained the blood and treasure of both England and France for over a hundred years. The claim was worthless in itself, and, even if its principle had been granted, there were nearer heirs than Edward. *A legal quibble.*—Respecting Edward's claim through his mother. *Battle of Poitiers.*—Fought 1346. Gained by the Black Prince. John, King of France, and his son, were taken prisoners. Poitiers is now a town of 30,000 inhabitants. It is about 200 miles S.W. from Paris. The English held it for nearly three hundred years. It was not the southern limit of their French territory, however. They held Bordeaux, over 100 miles S.W. of Poitiers, from 1132 to 1451. The son of the Black Prince—Richard of Bordeaux—(Richard II.) was born there. Still further south the English held the province of Gascony, which reaches to the Pyrenees, from 1152 to 1453. *One good man, &c.*—Cardinal Perigord. *Chichele.*—He was born in 1362, and died 1443. In 1414, the year of the Council of Constance, when all Europe was crying out for the Reform of the Church, he fanned to a flame Henry V.'s ambition to conquer the whole of France, as his rightful inheritance—the real object of his doing so being to prevent the reform of the Church in England, by the distraction of foreign war. Chichele founded All Souls' College, Oxford. He lies buried in Canterbury Cathedral. *Limoges.*—A town in the old province of the Limousin, now in the Department of Haute Vienne. Taken by the English, as in the text, in 1370. It is 110 miles N.W. of Bordeaux.

A FAREWELL.—*Tennyson.*

FLOW down, cold rivulet, to the sea,
Thy tribute wave deliver:
No more by thee my steps shall be,
For ever and for ever.

Flow, softly flow, by lawn and lea,
A rivulet then a river:
Nowhere by thee my steps shall be,
For ever and for ever.

But here will sigh thine alder tree,
And here thine aspen shiver;
And here by thee will hum the bee,
For ever and for ever.

A thousand suns will stream on thee,
A thousand moons will quiver,
But not by thee my steps shall be,
For ever and for ever.

THE DRUM.—*Scott of Amwell.*

I HATE that drum's discordant sound,
Parading round and round and round;
To thoughtless youth it pleasure yields,
And lures from cities and from fields,

To sell their liberty for charms
Of tawdry lace and glittering arms;
And when Ambition's voice commands,
To march, and fight, and fall in foreign lands.

I hate that drum's discordant sound,
Parading round and round and round;
To me it talks of ravaged plains,
And burning towns, and ruined swains,
And mangled limbs and dying groans,
And widows' tears, and orphans' moans,
And all that Misery's hand bestows,
To fill the catalogue of human woes.

CURIOSITIES OF WORDS.—*Archbishop Trench.*

For notice of Archbishop Trench, see "Fourth Reader," Public School Series, p. 162.

FRANK.—What a record of great social revolutions—in nations and in the feelings of nations—the one word "frank" contains; which is used, as we all know, to express aught that is generous, straightforward, and free. The Franks, or "*Free*-Men," were a powerful German tribe, or association of tribes, which, at the breaking up of the Roman Empire, possessed themselves of Gaul, to which they gave their own name. They were the ruling, conquering people, honourably distinguished from the Gauls and degenerate Romans, among whom they established themselves, by their independence, their love of freedom, their scorn of a lie; they had, in short, the virtues which belong to a conquering and dominant race in the midst of an inferior and conquered one. And thus it came to pass that, by degrees, the name "frank," which may have originally indicated a national, came to involve a moral distinction as well; and a "frank" man was synonymous not merely with a man of the conquering German race, but was an epithet applied to any man possessed of certain high moral qualities, which for the most part appertained to, and were found only in, men of that stock; and thus in men's daily discourse, when they speak of a person as being "frank," or when they use the words "franchise," "enfranchisement," to express civil liberties and immunities, their language here is the outgrowth, the record, and the result of great historic changes,—bears testimony to facts of history whereof it may well happen that the speakers have never heard.

MISCREANT.—It is to the "intense hatred" which the Crusades roused throughout Christendom against the Mahometan infidels we owe "miscreant," in its present sense of one to whom we would attribute the vilest principles and practice. The word meant at first simply a "misbeliever," and would have been applied as freely, and with as little sense of injustice, to the royal-hearted Saladin as to the most infamous wretch that fought in his armies. By degrees, however, those who employed it tinged it more and more with their feeling and passion, more and more lost sight of its primary use, until they would apply it to any whom they regarded with feelings of abhorrence, resembling those which they entertained for an infidel; just as "Samaritan" was often employed by the Jews purely as a term of reproach, and with no thought whether the person on whom it was fastened was really sprung from that mongrel people or not; indeed, when they were quite sure he was not.

CARDINAL.—The appropriation of this name to the parochial clergy of the city of Rome, with the subordinate bishops of that diocese, is an outgrowth, and, in itself, a standing testimony, of the measureless assumptions of the Roman See. One of the favourite comparisons by which that See was used to set out its relations of superiority to all other churches of Christendom was this; it was the 'hinge' or '*cardo*,' on which all the rest of the Church, as the door, at once depended and turned. It followed presently upon this that the clergy of Rome were '*cardinales*,' as nearest to, and most closely connected with him who was thus the 'hinge' or *cardo* of all.

DUNCE.—An inquiry into the pedigree of this word will lay open to us an important page in the intellectual history of Europe. We may all know what a "dunce" is, but we may not be as well acquainted with the quarter from which the word has been derived. Certain theologians in the Middle Ages were called Schoolmen, being so called because they were formed in the cloister and cathedral *schools*, which Charlemagne and his immediate successors founded—men not to be lightly spoken of, as they often are by those who never read a line of their works, and have not a tithe of their wit. At the revival of learning, however, their works fell out of favour; they were not written in classical Latin; the form in which their speculations were thrown was often unattractive; it was mainly in their authority that the Church of Rome found support for her perilled dogmas; on all which accounts it was

considered a mark of intellectual progress and advance to have broken with them and altogether thrown off their yoke. Some, however, still clung to these Schoolmen, and to one in particular, *Duns* Scotus, the great teacher of the Franciscan order; and many times an adherent of the old learning would seek to strengthen his position by an appeal to its great doctor, familiarly called *Duns;* while the other would contemptuously rejoin, "Oh, you are a *Dunsman!*" or, more briefly, "You are a *Duns!*" or, "This is a piece of *dunsery;*" and inasmuch as the new learning was ever enlisting more and more of the genius and scholarship of the age on its side, the title became more and more a term of scorn. "Remember ye not," says Tindal, "how within this thirty years, and far less, the old barking curs, *Dunce's* disciples, and like draff, called Scotists, the children of darkness, raged in every pulpit against Greek, Latin and Hebrew?" And thus from that long-extinct conflict between the old and the new learning, that strife between the mediæval and the modern theology, we inherit the words "dunce" and "duncery." The lot of poor Duns was certainly a hard one, for, whatever may have been his merits as a teacher of Christian truth, he was certainly one of the keenest and most subtle-witted of men. He, the "Subtle Doctor," by pre-eminence, for so his admirers called him, "the wittiest of the School divines," as Hooker declares him, could hardly have anticipated, and as little as any man deserved, that his name should have been turned into a bye-word expressive of stupidity and obstinate dulness.

STIPULATION—THRALL AND THRALDOM—LUMBER—SIGNING.—These words are worthy of notice:—

It is a signal evidence of the conservative powers of language that we may often trace in speech the records of customs and states of society which have now passed so entirely away as to survive nowhere else but in these words alone. For example, a "stipulation," or agreement, is so called, as many tell us, from "stipula," a straw, because it once was usual, when one person passed over landed property to another, that a straw from the land as a pledge or earnest of the property transferred, should be handed from the seller to the buyer, which afterwards was commonly preserved with, or inserted in, the title-deeds. "Thrall" and "thraldom" descend to us from a period when it was the custom to *thrill* or drill the ear of a slave in token of servitude, a custom in use among the Jews (Deut. xv. 17), and retained by our Anglo-Saxon

forefathers, who were wont thus to pierce at the church door the ears of their bondservants.

By "lumber" we are, or might be, taught that Lombards were the first pawnbrokers, even as they were the first bankers, in England; a "lumber"-room being a "Lombard"-room, or room where the pawnbroker stored his pledges.

Nor need I do more than remind you that in our common phrase of "*signing* our name" we preserve a record of a time when the first rudiments of education, such as the power of writing, were the portion of so few, that it was not, as now, the exception, but the custom, for most persons to make their mark or "sign," great barons and kings themselves not being ashamed to set their *sign* or cross to the weightiest documents. We more accurately express what we now do when we speak of "subscribing the name."

COMPOSITION.—Write a brief abstract of the etymology of the different words in this extract.

THE NEED AND BENEFIT OF THOUGHTFULNESS.

John Ruskin.

John Ruskin, M.A., was born in 1819, and educated at Christ Church, Oxford. His first book, "Modern Painters," was published 1843—60, and gave him rank as the greatest living art-critic, and the master of a perfect English style. He is pre-eminently a poet and interpreter of Nature, which he paints in words, with matchless beauty. But he is still more. There is no purer, nobler, or more generous spirit among us at this time than his. Of late years he has devoted himself to what may be called the Morals of National Life, and has met with much opposition to his views. They are spoken of as too lofty and too unselfish, to be carried out, as if that were not their greatest glory and the nation's deepest shame!

THE modern English mind has this much in common with that of the Greek, that it intensely desires, in all things, the utmost completion or perfection compatible with their nature. This is a noble character in the abstract, but becomes ignoble when it causes us to forget the relative dignities of that nature itself, and to prefer the perfectness of the lower nature to the imperfection of the higher; not considering that as, judged by such a rule, all the brute animals would be preferable to man, because more perfect in their functions and kind, and yet are always held inferior to him, so, in the works of man, those which are more perfect in their kind are always inferior

to those which are, in their nature, liable to more faults and shortcomings. For the finer the nature, the more flaws it will show through the clearness of it; and it is a law of this universe that the best things shall be seldomest seen in their best form. The wild grass grows well and strongly, one year with another; but the wheat is, according to the greater nobleness of its nature, liable to the bitterer blight. And, therefore, while in all things that we see, or do, we are to desire perfection, and strive for it, we are nevertheless not to set the meaner thing, in its narrow accomplishment, above the nobler thing, in its mighty progress; not to esteem smooth minuteness above shattered majesty; not to prefer mean victory to honourable defeat; not to lower the level of our aim, that we may the more surely enjoy the complacency of success.

But, above all, in our dealings with the souls of other men, we are to take care how we check, by severe requirement or narrow caution, efforts which might otherwise lead to a noble issue; and, still more, how we withhold our admiration from great excellences, because they are mingled with rough faults. Now, in the make and nature of every man, however rude or simple, whom we employ in manual labour, there are some powers for better things: some tardy imagination, torpid capacity of emotion, tottering steps of thought, there are, even at the worst; and in most cases it is all our own fault that they *are* tardy or torpid. But they cannot be strengthened, unless we are content to take them in their feebleness, and unless we prize and honour them in their imperfection above the best and most perfect manual skill. And this is what we have to do with all our labourers; to look for the *thoughtful* part of them, and get that out of them, whatever we lose for it, whatever faults and errors we are obliged to take with it. For the best that is in them cannot manifest itself but in company with much error.

Understand this clearly: You can teach a man to draw a straight line, and to cut one; to strike a curved line, and to carve it; and to copy and carve any number of given lines or forms, with admirable speed and perfect precision; and you find his work perfect of its kind: but if you ask him to think about any of those forms, to consider if he cannot find any better in his own head, he stops; his execution becomes hesitating; he thinks, and ten to one he thinks wrong; ten to one he makes a mistake in the first touch he gives to his work as a thinking being. But you have made

a man of him for all that. He was only a machine before, an animated tool.

And observe, you are put to stern choice in this matter. You must either make a tool of the creature, or a man of him. You cannot make both. Men were not intended to work with the accuracy of tools, to be precise and perfect in all their actions. If you will have that precision out of them, and make their fingers measure degrees like cog-wheels, and their arms strike curves like compasses, you must unhumanise them. All the energy of their spirits must be given to make cogs and compasses of themselves. All their attention and strength must go to the accomplishment of the mean act. The eye of the soul must be bent upon the finger-point, and the soul's force must fill all the invisible nerves that guide it, ten hours a day, that it may not err from its steely precision, and so soul and sight be worn away, and the whole human being be lost at last—a heap of sawdust, so far as its intellectual work in this world is concerned; saved only by its Heart, which cannot go into the form of cogs and compasses, but expands, after the ten hours are over, into fireside humanity.

On the other hand, if you will make a man of the working creature, you cannot make a tool. Let him but begin to imagine, to think, to try to do anything worth doing; and the engine-turned precision is lost at once. Out come all his roughness, all his dulness, all his incapability; shame upon shame, failure upon failure, pause after pause: but out comes the whole majesty of him also; and we know the height of it only when we see the clouds settling upon him. And, whether the clouds be bright or dark, there will be transfiguration behind and within them.

COMPOSITION.—Put the thoughts in this extract into words of your own, as concisely as you can.

IVRY.—*Macaulay* (1824).

Now glory to the Lord of Hosts, from whom all glories are!
And glory to our Sovereign Liege, King Henry of Navarre!
Now let there be the merry sound of music and of dance,
Through thy corn-fields green, and sunny vines, oh pleasant land of France!
And thou, Rochelle, our own Rochelle, proud city of the waters,
Again let rapture light the eyes of all thy mourning daughters.

As thou wert constant in our ills, be joyous in our joy,
For cold, and stiff, and still are they, who wrought thy walls annoy.
Hurrah! Hurrah! a single field hath turned the chance of war,
Hurrah! Hurrah! for Ivry, and Henry of Navarre.

Oh! how our hearts were beating, when, at the dawn of day,
We saw the army of the League drawn out in long array;
With all its priest-led citizens, and all its rebel peers,
And Appenzel's stout infantry, and Egmont's Flemish spears.
There rode the brood of false Lorraine, the curses of our land;
And dark Mayenne was in the midst, a truncheon in his hand;
And, as we looked on them, we thought of Seine's empurpled flood,
And good Coligni's hoary hair, all dabbled with his blood;
And we cried unto the living God, who rules the fate of war,
To fight for his own holy name, and Henry of Navarre.

The king is come to marshal us, in all his armour drest,
And he has bound a snow-white plume upon his gallant crest.
He looked upon his people, and a tear was in his eye;
He looked upon the traitors, and his glance was stern and high.
Right graciously he smiled on us, as rolled from wing to wing,
Down all our line, a deafening shout, "God save our Lord the King."
"And if my standard-bearer fall, as fall full well he may,
For never saw I promise yet of such a bloody fray,
Press where ye see my white plume shine, amidst the ranks of war,
And be your oriflamme to-day the helmet of Navarre."

Hurrah! the foes are moving. Hark to the mingled din
Of fife, and steed, and trump, and drum, and roaring culverin.
The fiery Duke is pricking fast across Saint André's plain,
With all the hireling chivalry of Guelders and Almayne.
Now by the lips of those ye love, fair gentlemen of France,
Charge for the golden lilies—upon them with the lance.
A thousand spurs are striking deep, a thousand spears in rest,
A thousand knights are pressing close behind the snow-white crest;
And in they burst, and on they rushed, while, like a guiding star,
Amidst the thickest carnage blazed the helmet of Navarre.

Now, God be praised, the day is ours. Mayenne hath turned his rein.
D'Aumale hath cried for quarter. The Flemish count is slain.
Their ranks are breaking like thin clouds before a Biscay gale;
The field is heaped with bleeding steeds, and flags, and cloven mail.

And then we thought on vengeance, and, all along our van,
"Remember St. Bartholomew!" was passed from man to man.
But out spake gentle Henry, "No Frenchman is my foe:
Down, down with every foreigner, but let your brethren go."
Oh! was there ever such a knight, in friendship or in war,
As our Sovereign Lord, King Henry, the soldier of Navarre?

Right well fought all the Frenchmen who fought for France to-day;
And many a lordly banner God gave them for a prey.
But we of the religion have borne us best in fight;
And the good Lord of Rosny hath ta'en the cornet white,
Our own true Maximilian the cornet white has ta'en,
The cornet white with crosses black, the flag of false Lorraine.
Up with it high; unfurl it wide; that all the host may know
How God hath humbled the proud house, which wrought his church such woe.
Then on the ground, while trumpets sound their loudest point of war,
Fling the red shreds, a footcloth meet for Henry of Navarre.

Ho! maidens of Vienna; ho! matrons of Lucerne!
Weep, weep, and rend your hair for those who never shall return.
Ho! Philip, send, for charity, thy Mexican pistoles,
That Antwerp monks may sing a mass for thy poor spearmen's souls.
Ho! gallant nobles of the League, look that your arms be bright;
Ho! burghers of Saint Genévièvе, keep watch and ward to-night.
For our God hath crushed the tyrant, our God hath raised the slave,
And mocked the counsel of the wise and the valour of the brave.
Then glory to His holy name, from whom all glories are;
And glory to our Sovereign Lord, King Henry of Navarre.

NOTES.—The battle of Ivry was fought on the 14th of March, 1590. The joint forces of the Huguenots and of the Liberal Catholic nobility, who supported Henry of Navarre's claim to the French throne after the assassination of Henry III., were on the one side, and on the other was the army of the Catholic League, under the Duke of Mayenne, brother of the Duke of Guise, recently murdered by Henry III. Henry of Navarre (afterwards Henry IV.) won a great victory. He was a Protestant at this time (or Calvinist, as Protestants were then called in France), and hence his triumph caused great joy among the Huguenots, whose champion he was. The ballad is supposed to be the utterance of one of the victorious party. The Reformed opinions had made great progress in France so far back as 1558, and had been espoused by some of the highest personages in the state, including the first prince of the blood, the King of Navarre, father of Henry IV. The extreme Romanists had, however, opposed them violently, and civil war had broken out as early as 1562, and had raged with brief intervals of nominal peace for twenty-eight years. *Rochelle, our own Rochelle.*—Rochelle had from the first been one of the great strongholds of Protestantism. It is a seaport on the west coast of France. *As thou wert constant in our ills.*—Rochelle stood a siege in 1573, after the St. Bartholomew massacre, rather than give up its Protestantism. It was aided in its victorious defence by troops sent from England. *Ivry.*—A town on the River Eure, in Normandy, in the department of the Eure. *Henry of Navarre.*— Henry IV., son of Antoine de Bourbon, Duke of Vendôme, who was first prince of the blood, and be-

came King of Navarre by his marriage with Jeanne d'Albret, heiress of that crown. *Navarre.*—A small kingdom in the north of Spain: now a Spanish province. It is bounded on the North by the Pyrenees at their western end, and is thus in the angle formed by the Bay of Biscay, where France and Spain meet. *The army of the League.*—The Duke of Guise, a great French noble, connected with the Crown by marriages, formed in 1576 a League of Catholics, to crush the Huguenots. The Protestants had previously banded themselves in a somewhat similar way. In a few months Guise's League numbered 30,000 enrolled members, sworn to put down Protestantism by force. The clergy and the Jesuits were the main agents in the wide spread of this Confederation. The League set up Cardinal Bourbon, third brother of Henry IV.'s father, as king, in Henry's stead, refusing *him* as a heretic. *Priest-led citizens.*—The pulpits thundered everywhere all over France on behalf of the League—

"The pulpit, drum ecclesiastic,
Beat with a fist instead of a stick."

Rebel peers.—A vast number of the French nobility joined the League, and many were now in its army fighting against Henry, the rightful king. *Appenzel's stout infantry.*—The Swiss foot soldiers from the Canton of Appenzel. They were drawn up on the right wing of the army of the League, next Egmont's Lancers. *Egmont's Flemish spears.*—Count Egmont, an officer of Philip II. of Spain, Protector of the League, had been sent from Flanders, then a Spanish province, with 1,500 lancers, and "four hundred carabines," to swell the Army of the League. The lancers were "excellently well horsed, and gallantly set forth with silk and gold; the 'carabines' were armed, for the most part, with back, breast, and head armour, and mounted on nimble horses of a middle size."—*Davila's Historie*, &c. *The brood of false Lorraine.*—The knights and others who served the House of Lorraine. Lorraine was the seat of the family of the Guises, who were descended from Raoul, Duke and Marquis of Lorraine, killed at Crecy, 1346. Francis, Duke of Guise, murdered by a Huguenot in 1563, and Henry, Duke of Guise, murdered by Henry III. in 1588, had been deadly enemies of the Reformers. The latter, indeed, was the great instigator, with Catherine de Medici, Charles IX.'s mother, of the massacre of St. Bartholomew: the former had founded "the League" which had done them so much harm. *Dark Mayenne.*—Charles, Duke of Mayenne, brother of Henry, Duke of Guise, commanded the Army of the League. *Seine's empurpled flood.*—The waters of the Seine, at Paris, supposed to have been dyed by the blood of the Huguenots massacred on St. Bartholomew's day, 1572. At least 10,000 were murdered in Paris alone, and 30,000 more through the rest of France. *Good Coligni.*—Admiral Gaspard de Coligny and his brother, François Chatillon, better known as the Sire d'Andelot, were nephews of the Constable Anne de Montmorency. Montmorency was born in 1493, and was killed in a battle against the Huguenots, near Paris, in 1567. He was the head of the armies of France, in virtue of his office. Gaspard de Coligny was the head of the Huguenots, and having been treacherously invited to Paris to the marriage of Henry of Navarre with Charles IX.'s sister Marguerite, fell in the St. Bartholomew massacre. He was, indeed, the first victim. His bloody corpse was flung into the street to let the Duke of Guise see that he was really dead. Born 1516. Murdered 1572, at the age of fifty-six. *The King—gallant crest.*—"The King was upon a great bay courser, armed all over except his face and head, and galloping up and down through all the several squadrons, did more by his looks and gestures than by his words, which could scarcely be heard by the multitude, to recommend his own fortune and the common safety unto the army. . . . At last, standing still at the head of the main battalion, joining his hands, and lifting up his eyes to heaven, he prayed so loud that he was heard by many. . . . His helmet, which he now put on, was covered with a long gallant plume of white feathers, for a mark that he might be followed."—*Davila. He looked—his eye.*—"He with an undaunted countenance, but sometimes with tears in his eyes, put his commanders in mind" that all depended "on the point of the sword, and the valour of their own arms."—*Davila.* This was just before he prayed. *As rolled—the King.*—The prayer over—"At the end of these words there arose in the front of the battle a loud acclamation from all that heard him, with an unanimous cry of '*Vive le Roi!*' which being taken and redoubled from squadron to squadron, through the whole army, gave a most happy beginning to the battle."—*Davila. Oriflamme.*—*Aurum*, gold, and *flamma*, flame. The oriflamme was the ancient royal banner of France. Its colour was purple-azure and gold, which, together with its five points, gave it its name. The oriflamme at Agin-

court is said to have been a red flag with five points. *Culverin.*—A kind of ancient cannon, which got its name from its long, thin serpent shape, and its vomiting fire like a dragon—from *L. Colubер*, a snake. *The fiery Duke.*—The right wing of the Army of the League was under the Duke of Nemours. The battle began as a cavalry fight, one body of the League's cavalry charging after another, only to be broken and sent off the field in wild flight, after a terrible *mêlée*, in which King Henry was ever in the van. *Guelderes.*—A province of the Netherlands. *Almayne, Fr. Allemagne.* — Germany. *Hireling cavalry.*—A large proportion of the cavalry of these times consisted of corps of "free lances," who followed war as a trade, hiring themselves out to whichever side paid best. A large body of German cavalry, who had taken service under Henry, and had been paid by him, but had deserted to the Army of the League from mercenary motives, some time before the battle, and now fought against him, were shot down without quarter, for their treachery. *Golden Lilies.*—The lily was the flower of France, as the rose is that of England. Golden lilies were embroidered on the royal standard. *D'Aumale.*—Charles de Lorraine, Duke d'Aumale, younger brother of Henry, Duke of Guise. *The Flemish Count.*—Count Egmont, commander of the Flemish cavalry. *Biscay gale.*—A gale in the Bay of Biscay, which is subject to great storms from its exposure to the whole sweep of the Atlantic. "*St. Bartholomew.*"—See above. "*Out spake gentle Henry,*" *&c.*—"He showed a very great and anxious care, even to the commanding with a hoarse voice, and crying aloud through the field every moment, that the French gentry should be spared." But "he commanded that the Germans who had broken their faith should all be put to the sword, to the last man."—*Davila. We of the Religion.*—Name assumed by the Huguenots. *Lord of Rosny.*—Maximilian de Bethune, Sieur de Rosny (see next line). *The Cornet White, &c.*—The flag of the Lorraines, carried that day by the Sieur de Cygogne, who was taken prisoner. *Vienna—Lucerne.*—Centres from which the auxiliaries of the League had been largely drawn. The one is the capital of Austria: the other the capital of the Catholic Canton of Switzerland, of the same name. *Philip.*—Philip II., son of Charles V., King of Spain and the Low Countries, and Emperor of the Indies—that is, of the Spanish discoveries and conquests in the West Indies and continental America. They included Mexico and Peru, and had yielded much treasure to Spain. He was the husband of our Queen Mary. *Pistoles.*—Spanish gold coins worth about sixteen shillings each. *Antwerp Monks.*—Antwerp was the capital of Philip's Flemish dominions. *Burghers of St. Geneviève.* — The people of Paris. St. Geneviève, or Genoveva, is the patron saint of Paris. The legend is, that when Attila the Hun invaded France, and took Metz and other cities, the people of Paris, then called Lutetia (Mud-town), when on the point of abandoning their homes and property to the invader, were reassured by a peasant girl, who announced in the name of heaven that the invader would not approach the city. The event corresponded with the prediction, and hence the honours since paid the saint. Paris was afraid that Henry would march at once on it. He did not sit down before it, however, till the 7th of May, and after taking the suburbs, was forced by the Duke of Parma, Philip II.'s general, who marched with 14,000 men from the Netherlands, to raise the siege on the 30th of August.

THE POET'S SONG.—*Tennyson.*

THE rain had fallen, the Poet arose,
He pass'd by the town and out of the street,
A light wind blew from the gates of the sun,
And waves of shadow went over the wheat,
And he sat him down in a lonely place,
And chanted a melody loud and sweet,
That made the wild-swan pause in her cloud,
And the lark drop down at his feet.

The swallow stopt as he hunted the bee,
The snake slipt under a spray,
The wild hawk stood with the down on his beak,
And stared, with his foot on the prey,
And the nightingale thought, "I have sung many songs,
But never a one so gay,
For he sings of what the world will be
When the years have died away."

THE NEW YEAR'S NIGHT OF AN ILL-SPENT LIFE.

Johann Paul Friedrich Richter.

Born in Bavaria, in 1763; died in Bavaria, 1825. A poet in prose; a great humourist; a wise moralist; with a soul full of light which shines even through his tears, and with a heart full of love. He lived and died in Germany, and thus never saw the great world, but his heart went forth to all that lived, notwithstanding. His style is the most difficult to translate of any German writer's; yet there is a wealth in it which repays any labour. His only son died when Richter was getting old, and the blow broke his heart. He literally wept himself blind at his loss.

An old man stood at midnight on the last day of the year, and looked up with a face of pale despair on the unmoving, ever-blooming heaven, and round on the still, pure, white earth, on which no one was, now, as joyless and sleepless as he. For his grave stood not far from him; it was covered only with the snow of age, not with the green of youth, and he brought from his whole rich life nothing with him, but errors, sins and ailments—a worn-out body, a desolate soul, a breast full of poison, and an age full of regret. His fair days of youth flitted round him that night like ghosts, and bore him back to that sweet morning when his father had set him first on the dividing line of life, which leads, on the right, by the sunny path of goodness, to a broad, peaceful land, full of light, and rich harvests, and angels; and, on the left, leads down by the underground mole courses of the guilty, to a dark cave, full of ever-dropping poisons, and dark foul damps.

Ah! the serpents hang round his breast, and the poison drops are on his tongue, and he knew, now, where he was.

Half maddened, and with unspeakable grief, he cried to heaven, "Give me my youth back again! O, father, set me on the dividing line once more, that I may choose differently from what I did!"

But his father and his youth were far away. He saw misleading lights dance on marshes, and go out in the churchyard,

and he said, "These are my foolish days!" He saw a star glide from heaven and shine in its fall till it burst and was quenched on the earth. "That is myself," said his bleeding heart, and the serpent's teeth of regret gnawed once more at his wounds.

Kindling phantasy showed him flitting sleep-walkers on the roofs, and the windmills raised their arms threateningly to strike at him, and a corpse left behind in the empty dead-house gradually took his form.

In the midst of this struggle, the music of the New Year suddenly rose from the church towers in the village, like distant church music. He was deeply moved. He looked round the horizon, and over the broad earth, and he thought on the friends of his youth, who now, happier and better than he, were teachers of the world, fathers of happy children, and honoured men, and he said, "Oh, I, like you, could sleep away the first night of the year, if I had only chosen! Ah, I would indeed be happy, ye dear old friends, if I had heeded your new year's wishes and counsels!"

In feverish recollection of his youth, it seemed to him, now, as if the corpse that was like himself, in the dead-house, raised itself up. At last, through the superstition which sees spirits of the other world on new year's night, it took the appearance of a living youth, in the attitude of the beautiful bronze youth in the Capitol, who pulls a thorn from his foot; and his own old blooming form was bitterly mimicked before him.

He could see no more: he hid his eyes; a thousand hot tears fell freezing into the snow. He only sighed once more, softly, sadly, and without moving. "Come only again, O youth, come again!"

And it came again; for he had only dreamed in this fearful way on the new year's night. He was still a youth; only, his errors had been no dream. But he thanked God that, while still young, he could turn away from the darkening paths of vice, and find once more the sunny way of goodness, which leads to the rich land of everlasting harvest.

Turn thou with him, O reader, if you stand on his path of evil. This dream, so alarming, will hereafter be your judge; and then, though you call, ever so tearfully, "Come again, beautiful youth," it will come back, never, never more!

NOTE.—*Beautiful Youth, &c.*—A famous bronze statue—"The Boy pulling a Thorn from his Foot." It is now in the museum in the Capitol, at Rome. It is a memorial of the best age of Grecian art. It is two feet five inches in height.

A HUMAN SKULL.—*F. Locker.*

Mr. Locker is of a Kentish family. His grandfather was Lieut.-Governor of Greenwich Hospital, and his father founded the Naval Gallery there. He himself married a sister of the late Earl of Elgin. These admirable verses are from a small volume published by Mr. Locker, called "London Lyrics." He was born in 1821.

A HUMAN skull! I bought it passing cheap,—
A slight reflection on its first employer;
I thought mortality did well to keep
Some mute memento of the Old Destroyer.

Time was, some may have prized its blooming skin,
Here lips were woo'd perhaps in transport tender;
Some may have chuck'd what was a dimpled chin,
And never had my doubt about its gender!

Did she live yesterday, or ages back?
What colour were the eyes when bright and waking?
And were your ringlets fair, or brown, or black,
Poor little head! that long has done with aching?

It may have held (to shoot some random shots)
Thy brains, Eliza Fry, or Baron Byron's,
The wits of Nelly Gwynn or Doctor Watts,—
Two quoted bards! two philanthropic sirens.

But this I trust is clearly understood,
If man or woman—and if loved or hated,
Whoever owned this Skull was not so good,
Nor quite so bad as many may have stated.

Who love, can need no special type of Death;
He bares his awful face too soon, too often;
"Immortelles" bloom in Beauty's bridal wreath,
And does not yon green elm contain a coffin?

O, *cara* mine, what lines of care are these?
The heart still lingers with its golden hours,
But fading tints are on the chestnut trees,
And where is all that lavish wealth of flowers?

The end is near. Life yields not what it gave,
But Death has promises that call for praises;
A very worthless rogue may dig the grave,
Yet hands unseen will dress the turf with daisies.

NOTES.—Mrs. Elizabeth Fry, daughter of John Gurney, Esq., Norwich. She was a member of the Society of Friends, and wife of Mr. Joseph Fry, a London merchant. She became famous for her Christian labours among female prisoners in English and foreign gaols. Born, 1780; died, 1845. *Baron Byron.*—George, Lord Byron, the poet. See "Fifth Reader," page 31. *Nelly Gwynn.*—An actress, who became one of the favourites of Charles II. She was a very beautiful woman. Died, 1687. *Watts, Dr. Isaac.*—Author of the "Hymns." A dissenting clergyman of London. Born, 1674; died, 1748.

THE ORIGIN OF THE ENGLISH NATION.—*Macaulay.*

THE great-grandsons of those who had fought under William and the great-grandsons of those who had fought under Harold began to draw near each other in friendship; and the first pledge of their reconciliation was the Great Charter, won by their united exertions, and framed for their common benefit.

Here commences the history of the English nation. The history of the preceding events is the history of wrongs inflicted and sustained by various tribes, which indeed all dwelt on English ground, but which regarded each other with aversion such as has scarcely ever existed between communities separated by physical barriers. For even the mutual animosity of countries at war with each other is languid when compared with the animosity of nations, which, morally separated, are yet locally intermingled. In no country has the enmity of race been carried farther than in England. In no country has that enmity been more completely effaced. The stages of the process by which the hostile elements were melted down into one homogeneous mass are not accurately known to us. But it is certain that when John became King, the distinction between Saxons and Normans was strongly marked, and that before the end of the reign of his grandson it had almost disappeared. In the time of Richard the First, the ordinary imprecation of a Norman gentleman was, "May I become an Englishman!"—his ordinary form of indignant denial was, "Do you take me for an Englishman?" The descendant of such a gentleman a hundred years later was proud of the English name.

The sources of the noblest rivers which spread fertility over continents, and bear richly-laden fleets to the sea, are to be sought in wild and barren mountain tracts, incorrectly laid down in maps, and rarely explored by travellers. To such a tract, the history of our country during the thirteenth century may not unaptly be compared. Sterile and obscure as is that portion of our annals, it is there that we must seek for the

origin of our freedom, our prosperity, and our glory. Then it was that the great English people was formed, that the national character began to exhibit those peculiarities which it has ever since retained, and that our fathers became emphatically islanders,—islanders not merely in geographical position, but in their politics, their feelings, and their manners. Then first appeared with distinctness that constitution which has ever since, through all changes, preserved its identity; that constitution of which all the other free constitutions in the world are copies, and which, in spite of some defects, deserves to be regarded as the best under which any great society has ever yet existed during many ages. Then it was that the House of Commons, the archetype of all the representative assemblies which now meet, either in the old or in the new world, held its first sittings. Then it was that the common law rose to the dignity of a science, and rapidly became a not unworthy rival of the imperial jurisprudence. Then it was that the courage of those sailors who manned the rude barks of the Cinque Ports first made the flag of England terrible on the seas. Then it was that the most ancient colleges which still exist at both the great national seats of learning were founded. Then was formed that language, less musical, indeed, than the languages of the south, but in force, in richness, in aptitude for all the highest purposes of the poet, the philosopher, and the orator, inferior to the tongue of Greece alone. Then, too, appeared the first faint dawn of that noble literature, the most splendid and the most durable of the many glories of England.

NOTES.—*John*, King.—Born, 1166; reigned from 1199 to 1216. He was the third Plantagenet King, and was the brother of Richard Cœur de Lion. *Richard the First.*—Elder brother of King John. Born, 1157; reigned, from 1189 to 1199. *Cinque Ports.*—Originally five ports to which a Charter, with special privileges, was given by William the Conqueror, in 1067. Others were afterwards included under the name. They are, now, Dover, Sandwich, Hythe, and Romney, on the coast of Kent, and Rye, Winchelsea, Hastings, and Seaford, in Sussex. *House of Commons.*—Began in 1258. *Common Law.*—The law based on custom, the decision of judges, &c., as distinct from statute law.

ANECDOTE OF SHELLEY.—*Leigh Hunt.*

Leigh Hunt, an English critic, essayist, and minor poet of the first half of this century. In early life he was Editor of the *Examiner* newspaper, and was imprisoned for two years for a so-called libel on the Prince Regent—afterwards George IV. Through this, Byron became his friend,

and supported him and his family for years. Shelley also befriended him greatly, and he became intimate with all the literary men of his day. He was born in 1784; died, 1858. For Shelley's life, see page 18.

I WAS returning home one night to Hampstead after the opera. As I approached the door, I heard strange and alarming shrieks, mixed with the voice of a man. The next day it was reported by the gossips that Mr. Shelley, no Christian (for it was he who was there), had brought some "very strange female" into the house, no better, of course, than she ought to be. The real Christian had puzzled them. Shelley, in coming to our house that night, had found a woman lying near the top of the hill, in fits. It was a fierce winter night, with snow upon the ground; and winter loses nothing of its fierceness at Hampstead. My friend, always the promptest as well as most pitying on these occasions, knocked at the first houses he could reach, in order to have the woman taken in. The invariable answer was, that they could not do it. He asked for an outhouse to put her in, while he went for a doctor. Impossible! In vain he assured them she was no impostor. They would not dispute the point with him; but doors were closed, and windows were shut down. Had he lit upon worthy Mr. Park, the philologist, that gentleman would assuredly have come, in spite of his Calvinism. But he lived too far off. Had he lit upon my friend Armitage Brown, who lived on another side of the Heath; or on his friend and neighbour, Dilke; they would either of them have jumped up from amidst their books or their bed-clothes, and have gone out with him. But the paucity of Christians is astonishing, considering the number of them. Time flies; the poor woman is in convulsions; her son, a young man, lamenting over her. At last my friend sees a carriage driving up to a house at a little distance. The knock is given; the warm door opens; servants and lights pour forth. Now, thought he, is the time. He puts on his best address, which anybody might recognise for that of the highest gentleman as well as of an interesting individual, and plants himself in the way of an elderly person, who is stepping out of the carriage, with his family. He tells his story. They only press on the faster. "Will you go and see her?" "No, sir; there's no necessity for that sort of thing, depend on it. Impostors swarm everywhere: the thing cannot be done; sir, your conduct is extraordinary." "Sir," cried Shelley, assuming a very different manner, and forcing the flourishing householder to stop out of astonishment, "I am

sorry to say that *your* conduct is *not* extraordinary; and if my own seems to amaze you, I will tell you something which may amaze you a little more, and I hope will frighten you. It is such men as you who madden the spirits and the patience of the poor and wretched; and if ever a convulsion comes in this country (which is very probable) recollect what I tell you:—you will have your house, that you refuse to put the miserable woman into, burnt over your head." "God bless me, sir! Dear me, sir!" exclaimed the poor, frightened man, and fluttered into his mansion. The woman was then brought to our house, which was at some distance, and down a bleak path (it was in the Vale of Health); and Shelley and her son were obliged to hold her till the doctor could arrive. It appeared that she had been attending this son in London, on a criminal charge made against him, the agitation of which had thrown her into the fits on her return. The doctor said that she would have perished, had she lain there a short time longer. The next day my friend sent mother and son comfortably home to Hendon, where they were known, and whence they returned him thanks full of gratitude.

WOULD YOU BE YOUNG AGAIN?—*Baroness Nairne.*

The Baroness Nairne was born August 16, 1766; died October 27, 1845, aged 79. She was the Authoress of many touching songs, lyrics, &c.; among others, of the exquisite song, "The Land o' the Leal."

Would you be young again?
So would not I—
One tear to memory giv'n,
Onward I'd hie—
Life's dark flood forded o'er,
All but at rest on shore,
Say, would you plunge once more,
With home so nigh?

If you might, would you now
Retrace your way?
Wander through thorny wilds,
Faint and astray?
Night's gloomy watches fled,
Morning all beaming red,
Hope's smiles around us shed,
Heavenward—away.

Where are they gone, of yore
  My best delight?
Dear and more dear, tho' now
  Hidden from sight?
Where they rejoice to be,
There is the land for me;
Fly time, fly speedily,
  Come life and light.

CHEERFULNESS OF GREAT MEN.—*S. Smiles.*

Samuel Smiles was born at Haddington, N.B., in 1812. He was educated as a medical man, but, after practising for six years, became secretary to two railway companies successively. Author of "Self Help," "Lives of the Engineers," "Visits to the Country of the Vaudois," and "Character," from which the following is taken.

CHEERFULNESS is an excellent wearing quality. It has been called the bright weather of the heart. It gives harmony of soul, and is a perpetual song without words. It is tantamount to repose. It enables nature to recruit its strength; whereas worry and discontent debilitate it, involving constant wear-and-tear.

How is it that we see such men as Lord Palmerston growing old in harness, working on vigorously to the end? Mainly through equanimity of temper and habitual cheerfulness. They have educated themselves in the habit of endurance, of not being easily provoked, of bearing and forbearing, of hearing harsh and even unjust things said of them without indulging in undue resentment, and avoiding worreting, petty, and self-tormenting cares. An intimate friend of Lord Palmerston, who observed him closely for twenty years, has said that he never saw him angry, with perhaps one exception; and that was when the ministry responsible for the calamity in Affghanistan, of which he was one, were unjustly accused by their opponents of falsehood, perjury, and wilful mutilation of public documents.

So far as can be learnt from biography, men of the greatest genius have been for the most part cheerful, contented men—not eager for reputation, money, or power—but relishing life, and keenly susceptible of enjoyment, as we find reflected in their works. Such seem to have been Homer, Horace, Virgil, Montaigne, Shakespeare, Cervantes. Healthy, serene cheerful-

ness is apparent in their great creations. Among the same class of cheerful-minded men may also be mentioned Luther, More, Bacon, Leonardo da Vinci, Raphael, and Michael Angelo. Perhaps they were happy because constantly occupied, and in the pleasantest of all work—that of creating out of the fulness and richness of their great minds.

Milton, too, though a man of many trials and sufferings, must have been a man of great cheerfulness and elasticity of nature. Though overtaken by blindness, deserted by friends, and fallen upon evil days—"darkness before and danger's voice behind"—yet did he not bate heart or hope, but "still bore up and steered right onward."

Henry Fielding was a man borne down through life by debt, and difficulty, and bodily suffering; and yet Lady Mary Wortley Montague has said of him that, by virtue of his cheerful disposition, she was persuaded he "had known more happy moments than any person on earth."

Dr. Johnson, through all his trials and sufferings and hard fights with fortune, was a courageous and cheerful-natured man. He manfully made the best of life, and tried to be glad in it. Once, when a clergyman was complaining of the dulness of society in the country, saying, "they only talk of runts" (young cows), Johnson felt flattered by the observation of Mrs. Thrale's mother, who said, "Sir, Dr. Johnson would learn to talk of runts"—meaning that he was a man who would make the most of his situation, whatever it was.

Johnson was of opinion that a man grew better as he grew older, and that his nature mellowed with age. This is certainly a much more cheerful view of human nature than that of Lord Chesterfield, who saw life through the eyes of a cynic, and held that "the heart never grows better by age; it only grows harder." But both sayings may be true according to the point from which life is viewed, and the temper by which a man is governed; for while the good, profiting by experience, and disciplining themselves by self-control, will grow better, the ill-conditioned, uninfluenced by experience, will only grow worse.

Sir Walter Scott was a man full of the milk of human kindness. Everybody loved him. He was never five minutes in a room ere the little pets of the family, whether dumb or lisping, had found out his kindness for all their generation. Scott related to Captain Basil Hall an incident of his boyhood which showed the tenderness of his nature. One day a dog coming

towards him, he took up a big stone, threw it, and hit the dog. The poor creature had strength enough left to crawl up to him and lick his feet, although he saw its leg was broken. The incident, he said, had given him the bitterest remorse in his after life; but, he added, "An early circumstance of that kind, properly reflected on, is calculated to have the best effect on one's character throughout life."

"Give me an honest laugher," Scott would say; and he himself laughed the heart's laugh. He had a kind word for everybody, and his kindness acted all round him like a contagion, dispelling the reserve and awe which his great name was calculated to inspire. "He'll come here," said the keeper of the ruins of Melrose Abbey to Washington Irving —"he'll come here sometimes, wi' great folks in his company, and the first I'll know of it is hearing his voice calling out, 'Johnny, Johnny Bower!' And when I go out I'm sure to be greeted wi' a joke or a pleasant word. He'll stand and crack and laugh wi' me, just like an auld wife; and to think that of a man that has *such an awful knowledge o' history!*"

Dr. Arnold was a man of the same hearty cordiality of manner—full of human sympathy. There was not a particle of affectation or pretence of condescension about him. "I never knew such a humble man as the doctor," said the parish clerk at Laleham; "he comes and shakes us by the hand as if he was one of us." "He used to come into my house," said an old woman near Fox How, "and talk to me as if I were a lady."

Sydney Smith was another illustration of the power of cheerfulness. He was ever ready to look on the bright side of things; the darkest cloud had to him its silver lining. Whether working as country curate, or as parish rector, he was always kind, laborious, patient, and exemplary; exhibiting in every sphere of life the spirit of a Christian, the kindness of a pastor, and the honour of a gentleman. In his leisure he employed his pen on the side of justice, freedom, education, toleration, emancipation; and his writings, though full of common-sense and bright humour, are never vulgar; nor did he ever pander to popularity or prejudice. His good spirits, thanks to his natural vivacity and stamina of constitution, never forsook him; and, in his old age, when borne down by disease, he wrote to a friend: "I have gout, asthma, and seven other maladies, but am otherwise very well." In one

of the last letters he wrote to Lady Carlisle, he said: "If you hear of sixteen or eighteen pounds of flesh wanting an owner, they belong to me. I look as if a curate had been taken out of me."

NOTES.—*Henry John Temple, Lord Palmerston.*—Born, 1784; died, 1865. Entered Parliament about the beginning of the century, and was a member of successive governments from 1807, except for rare intervals, till, in 1855, he became Prime Minister, which he continued to be till his death. *Affghanistan.* — A country on the north-west of India, on the other side of the Hindoo Koosh, a branch of the Himalaya mountains. It can be approached from India by only two passes, through mountains some of which are 20,000 feet high. In one of these passes, the more northern, called the Khyber Pass, 26,000 men, women, and children, forming the British army and its followers, were massacred, in 1842, on their retreat to India, after evacuating Affghanistan. So great a military calamity never befell a British army before or since. Only one man of the whole force, Dr. Burnet, escaped alive. *Homer.*—One of the great poets of the world, a Greek. Lived about 1,000 B.C. He sings the Fall of Troy, and the wanderings of Ulysses, King of Ithaca, a Greek island. *Horace.*—A famous Roman poet; born, 65 B.C.; died, 8 B.C. *Virgil.*—A famous Roman poet; born, 70 B.C.; died, 19 B.C. *Montaigne.*—A French essayist of exquisite genius; born, 1533; died, 1592. *Shakspere.*—(See "Fifth Reader," p. 199). *Cervantes.*—Author of "Don Quixote," a world-famous satire on chivalry. A Spaniard; born, 1547; died, 1616, the same year as Shakspere died. *Luther.*—Martin, the great Reformer; a poor miner's son; born at Eisleben, in Saxony, 1483; died, 1546. *More.*—Sir Thomas, Lord Chancellor under Henry VIII.; born in London, 1480; beheaded by a gross act of tyranny, 1535, by Henry. *Bacon.*—Lord, Lord Chancellor under Elizabeth. A man of the grandest intellect; degraded and heavily fined for bribery and corruption. Called by Pope "the greatest, wisest, meanest of mankind;" born in London, 1561; died, 1626. *Leonardo da Vinci.*—A famous Italian painter, sculptor, &c.; born, 1452; died, 1519. Hallam says that he anticipated the discoveries and principles which have made Galileo, Kepler, and Copernicus, the astronomers, and Bacon, famous. *Raphael*, or Raffaele.—A great Italian painter. His cartoons are now in the Kensington Museum; born, 1483; died, 1520. *Michael Angelo.*—An Italian. A very wonderful man: at once a great painter, sculptor, and architect, and a fine poet; born in Tuscany, 1474; died, 1563. *Milton.*—John (see "Fifth Reader," p. 215). *Henry Fielding.*—A famous English novelist; born, 1707; died at Lisbon, 1754. *Lady M. W. Montague.*—Eldest daughter of the Duke of Kingston. A famous literary personage in her day; born, 1690; died, 1762. *Dr. Johnson.*—Samuel, a great English writer; born, 1709; died, 1784. *Lord Chesterfield.*—In his day esteemed a man of great literary taste, and the leader of manners and fashion; born, 1694; died, 1773. *Scott.*—Sir Walter (see "Fifth Reader," p. 179). *Captain Basil Hall, R.N.*—Author of various books of travel, &c., very popular in their day; born, 1788; died, 1844. *Washington Irving.*—A delightful American author, deservedly spoken of as the American Goldsmith; born, at New York, 1783; died, 1859. *Melrose Abbey.*—Ruins near Melrose, Roxburghshire. *Dr. Arnold.*—Thomas, an English clergyman, head master of Rugby School, author of "A History of the Roman Republic," "Sermons," &c. His life, by Dean Stanley, shows him to have been a man whose early death was a great loss; born, 1795; died, 1842. *Sydney Smith.*—An English clergyman, author of many essays in the *Edinburgh Review*, of which he was one of the projectors,—"Sermons," &c. His essays are marked by a sound and generous liberality, expressed with equal force and humour. In his later years Canon of St. Paul's; born, 1771; died, 1845. *Lady Carlisle.*—Wife of the Earl of Carlisle.

COMPOSITION.—Write the incidents related of Sir Walter Scott in your own language.

LESSONS ON SPECIFIC SUBJECTS.

PHYSIOLOGY.

THE ORGANS AND FUNCTIONS OF NUTRITION.

1. When solid food is taken into the mouth it is, or ought to be, chewed and ground by the teeth till it is reduced to a pulp, and in this condition it passes into the stomach. While it is being chewed the glands of the mouth pour out saliva in great quantity, and this mixes with the food, the air caught in the bubbles of the saliva being also added.

Thus the stomach receives each mouthful reduced to a soft mass, and saturated with air and moisture to aid digestion. The saliva has moreover the chemical property of aiding in the change of the starch of our food into sugar. The principle in it which effects this is called ptyalin.*

2. The stomach, which has now to digest what it has received, is a muscular bag lined with a very delicate membrane, over the whole surface of which are the mouths of great numbers of little glands (Fig. 62). These pour out on the food which enters the stomach a thin acid fluid called the *gastric* juice,† which dissolves most of the food by the *lactic* acid‡ and the *pepsin*,‖ and some other principles it contains.

3. The exact properties of the gastric juice have been discovered by putting a small portion of that part of the mucous membrane of an animal's stomach which contains the peptic glands into water made slightly acid, and then adding small pieces of butchers' meat, or of a hard boiled egg, or any other kind of food that may be selected, keeping the water at about the natural heat of the stomach—that is at about 100°. The white of the egg is dissolved in a few hours, if there be not too much of it for the quantity of pepsin in the water, and all the meat is also dissolved in about the same time, except a pulp consisting of the fat and the membranous tissues it contained—the pepsin having been the great agent in the process.

4. Still more complete illustrations of the digestive power of the gastric juice were, however, obtained by the experiments of a Canadian physician, Dr. Beaumont, who had a patient under his care in 1857, whose stomach had been injured in such a way by a gun-shot wound that food could be introduced from the outside through the opening, and the rate of its digestion accurately noted. The results of his investigations will be found stated at length in the book from which these sections are extracted —"Physiology and Health," by Dr. Cunningham Geikie.

* From Greek *ptuo*, to spit.
† From Greek *gaster*, the stomach.
‡ From Latin *lac*, *lactis*, milk.
‖ From Greek *pepto*, I digest.

5. While in the stomach, the food thus dissolving is reduced by constant additions of gastric juice, and by being continually rolled about by the motions of the stomach, to the consistence of thick soup, in which state it is called CHYME.* In this form it passes, in part, into the duodenum,†—a mouth or pipe from eight to nine inches long, which connects the stomach with the small intestine, and is indeed the first part of it. You may see the beginning of it in Fig. 25, on the right or narrow side of the stomach. A great part of the chyme is, however, absorbed by the stomach itself, through the walls of the countless delicate blood-vessels which cover its inner lining, and passes at once into the current of the blood. (Fig. 26.)

Fig. 25.

6. The intestines, as you see in the illustration (Fig. 25), form one long tube, and are in fact only a continuation of the alimentary canal, which passes from the mouth through the body, enlarging into the stomach in its course. Their structure is the same as that of the stomach — a muscular outside shell lined with membrane; and they are divided into two portions, the *small intestine* and the *large*. The whole of their membranous lining is studded with countless very small glands, which give out a secretion called the *intestinal juice*, which helps the assimilation of the food, though the exact part it plays in this is not known.

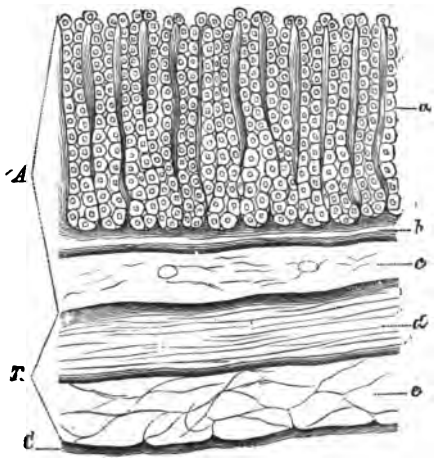


Fig. 26.

Magnified section of the Stomach, showing its various coats.

A, mucous coat; *a*, tubular glands; B, muscular coat; C, outside envelope of peritoneum.‡

* From Greek *chymos*, juice.

† From Latin *duodeni*, twelve, because it was formerly thought to be about twelve fingers' breadths long.

‡ From Greek *peri*, round, and *teino*, to stretch.

7. A very curious characteristic of the small intestine greatly aids it in its functions. Its surface is roughened into countless cross folds, very small and close together, and these folds and the other parts of the intestine are fringed with a vast number of little thread-like processes called *villi* (Fig. 27), which stand close, side by side, like the pile of velvet.

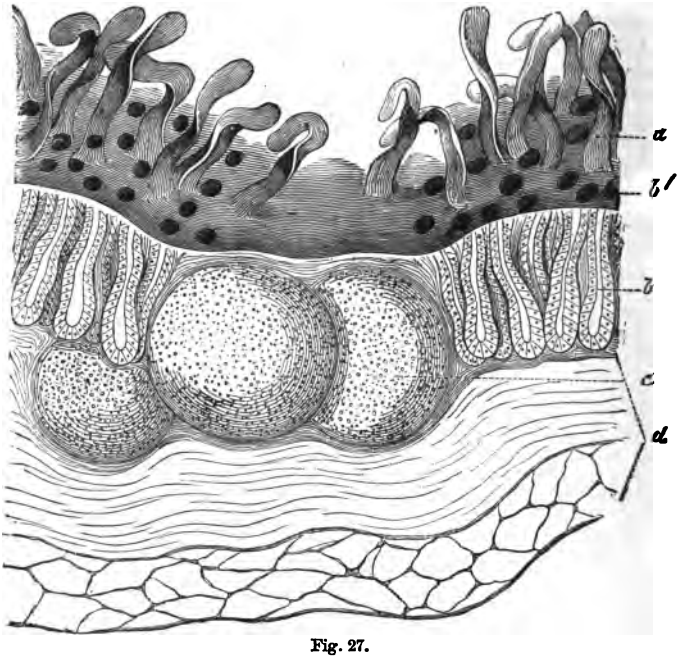


Fig. 27.

Magnified section of the Small Intestine, showing its different Coats or Layers.

a, Villi; *b*, tubular glands of the mucous lining of the intestine, shown in their length; *b'*, openings of these glands; *c d*, muscular coats of the intestine.

Each of these *villi* has within it the commencement of a *lacteal vessel*—that is a vessel which absorbs the *milky-like* CHYLE, or liquid into which our food changes after passing through the form of *chyme*. A fine hair-like network of blood-vessels, moreover, for bringing the blood to the spot, from the heart, and for carrying it away again, spreads itself over the surface of these villi to help in the absorption of the prepared food.

8. As the chyme passes into and fills the duodenum, the "pancreas" * sends out its secretion, which, with the bile from the gall-bladder, flows

* From two Greek words meaning "all flesh."

in amongst it, and, mixing with it, turns it into the *chyle* or which I have just spoken.

This chyle owes its white colour to countless minute fatty particles mixed up with it, as oil is in an emulsion. It is forced along the small intestine by peculiar movements of the bowels, called the peristaltic* motions, which are a succession of contractings and relaxings, by which the different portions of the bowels rise and fall in turn, like the motions of a worm or snake. As it is thus being thrust onwards, the dissolved matter it contains is absorbed by the glands of the villi, while the fatty particles pass through the villi into the vessels within, just as the air passes through the walls of the air-cells in the lungs. The blood-vessels and the lacteals, between them, thus finally absorb into the blood all the nutritious part of our food, and leave only what is of no use for the support of the system to pass off into the larger intestine.

MUSCLES AND NERVES.

1. The muscles form the greater part of the flesh of men and animals, and supply them with the power of moving, and thus of using their various limbs and organs. It is by the help of muscles that our hearts beat and that our limbs are at our service: they are at work for us, incessantly, in carrying on the countless internal movements of our system necessary for life, and we call multitudes of them into play by the minutest external motion of the body or of any of its parts.

Fig. 28.

2. The muscles are of very various forms, according to their special use, and the shape and position of the bones on which they are fixed, and which they have to move.

Their colour is deep red in beef and mutton, and in human flesh, but semi-transparent, grey, or whitish in animals newly born, as, for example, in veal; and they are of the same pale colour in fish, the rabbit, &c.

The larger or slighter swellings under the skin by which we judge the strength of wrestlers and other athletes, or that of ordinary men, are caused by the muscles. Weakness is shown by their smallness; power by their being large and prominent. It is the muscles and their tendons—that is the prolongations of their substance by which they are united to the bones,—which many speak of as the nerves.

3. The muscles consist of bundles of parallel fibres (Fig. 28) which possess the power of contracting themselves, and thus

* From Greek *peristello*, to contract; or *peristalto*, to surround.

of shortening and thickening their substance, when they draw their ends, fixed on the bones, nearer each other.

The muscular fibres, B, are long and cylindrical, and are crossed by what are called *striæ*,* A, which are parallel to each other, and may be seen, under the microscope, approaching each other when a muscle is contracting.

These fibres pass, at their two ends, into the fibrous substance of the tendons, and they are sheathed in membranous tissue, which separates them from other fibres around. They are further united into bundles, and several of these together form a muscle, which, itself, is sheathed in fibrous tissue, and ends, at its extremities, in tendons, fixed to the bones. The whole muscle decreases in length, and approaches the points at which it is fixed to the bones, during its contraction.

4. This muscular contraction takes place by the influence of the will on the muscles of the limbs, and by that of the nervous system, without any action of the will, in the muscles of the heart and those of the vital organs.

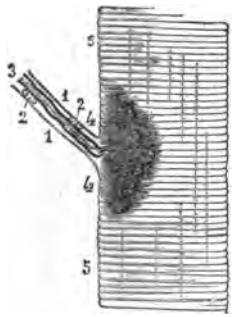


Fig. 29.

The muscles are connected with the cells of the brain and of the spinal marrow, by the nerves. The threads of the *motive* nerves —that is of those by which motion is brought about—pass into a cell of the grey outer substance of the spinal marrow, while the other end joins the muscular fibre by a small swelling, in the way shown in Fig. 29.

5. The nervous influence emanating from the brain and the spinal marrow passes through the nervous cord, as the electric spark passes through the wire of the telegraph. It flashes along the threads of which the cord is composed to the raised point at which it is joined to the muscle, and instantly contracts it. Electricity applied, either directly to a muscle or to the nerve connected with it, produces the same contraction.

In this contraction, all the fibres in the various fibrous bundles of which the muscle consists, act at once, diminishing its length and causing a quick movement by which its extremities, joined to the bones, are brought closer together. Most of the motions of our limbs require the simultaneous contraction of a number of muscles. The quickness and exactness of these movements is amazing. A violin-player bends his fingers forty or fifty times in a second, pressing on the string, each time, with just the force required. Even this, however, is nothing compared with the rapidity of muscular motions in some of the lower animals, for the

* A Latin word meaning a *groove, furrow*, or *crease*.

muscles of the wings of a common fly contract about four thousand times in a second, when it is darting through the air at its swiftest.

6. You may yourself feel the contraction of your own muscles by grasping the upper part of your right arm with your left hand, and then bending the right arm together. The muscles of the upper arm will be felt and seen to swell and stiffen. In the case of men who use their arms much in their occupations—as, for instance, blacksmiths or sailors, this is very noticeable.

During the action of the muscles various chemical phenomena take place in their substance. The blood enters it in great abundance, and the organic matter of which the blood consists suffers combustion by oxygen more freely than when we are at rest. The heat, which is, really, combustion, or, in other words, the union of oxygen with the organic matter of the blood, increases; carbonic acid is formed in great abundance, and what is called lactic acid is also produced. It is the accumulation of these materials, resulting from combustion, which in the end, by obstructing the action of the muscle, and rendering contraction more and more painful and difficult, causes the sensation of fatigue, and forces us to rest after prolonged toil.

THE NERVES.

1. The nerves are white cords which go out from the brain and the spinal marrow, and divide themselves through the body, so as to reach every part of it. There are two great classes of them.

First. Those which transmit impressions received from without to the central nervous organ, the brain. They are called the SENSORY,* or AFFERENT† NERVES, because they are the agents of the *senses*, and *carry* their messages to the brain.

Second. The second class is the MOTOR,‡ or EFFERENT§ NERVES, which get their name from being the cause of *motion*, and the agents in *carrying out* the messages of the brain to the muscles.

2. The great majority, if not the whole of the movements of the body and of its parts, are the effects of some influence applied to the outer ends of the different nerves, and transmitted through them to the brain, or the central nervous organ with which they are connected. Having thus delivered their message, a further influence is then sent out through the efferent or motor nerves, from the central organ to the muscles affected, and this causes their particles to take up a new position, so that each fibre becomes shorter and thicker.

3. Thus the sensory, or afferent nerves—or, as they are sometimes called, the *nerves of sensibility*—transmit the impressions of the senses to

* From Latin *sensus*, a sense, which is formed from *sentio, sensum*, to feel, to perceive.
† From Latin *affero*, to bring, to carry.
‡ From Latin *moveo, motum*, to move.
§ From Latin *effero*, to carry forth.

the brain, and the brain then sends out its commands, in obedience to these, to the muscles of voluntary motion*—that is, to the muscles which are *moved by the power of the will.* The central organ of the nervous system, the brain, when altered by disease, can neither receive nor transmit the impulses of feeling or motion. If it be injured on one side, this will be seen by the paralysis of one side of the body; but as the nerves cross before entering the brain, it is the opposite side of the body, not the side on which the brain is affected, which is paralysed.

4. The sense of touch is due to the presence in every part of the skin, of countless minute nerves. They run below the little ridges or roughnesses of the outer skin, and have their termination in the true skin which underlies the outer, insensible, epidermis. † These roughnesses are caused by what are called *papillæ,* ‡ which are rows of little eminences formed by loops of a very fine nerve and artery. They are protected from injury by the outer skin, which does not feel, and thus deadens the effect of contact with anything external. The papillæ are larger in those parts where the sense of touch is most delicate, and consist of a number of branch nerves and arteries of almost inconceivable fineness. The epidermis does not follow the undulations of these little bodies, but is spread smoothly over them, and hence they come near the surface over the whole body, like little peaks rising upwards, nearly through a liquid. The sense of touch is caused by thousands of these minute points coming in contact with an object, and sending their sensations to the brain. How extremely sensitive they are is seen in the fact that their mere exposure tc the air, by the removal of the cuticle, or epidermis, causes pain.

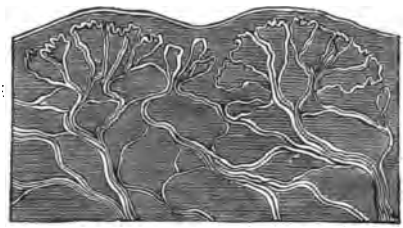


Fig. 30.
Two ridges of the skin of the Tip of the Finger, Magnified, to show the Nerves of Touch.

* Latin *voluntarius,* from *volo,* to will.
† The outer skin, which is *ἐpi tó dermati,* over the true skin.
‡ *Papilla* (Latin), a nipple—any little lump.

THE BRIDGE OF SIGHS.—*Thomas Hood.*

"Drown'd! Drown'd!"—*Hamlet.*

ONE more unfortunate,
Weary of breath,
Rashly importunate,
Gone to her death!

Take her up tenderly,
Lift her with care;
Fashion'd so slenderly,
Young, and so fair!

Look at her garments
Clinging like cerements;
Whilst the wave constantly
Drips from her clothing;
Take her up instantly,
Loving, not loathing.—

Touch her not scornfully;
Think of her mournfully,
Gently and humanly;
Not of the stains of her,
All that remains of her,
Now is pure womanly.

Make no deep scrutiny
Into her mutiny
Rash and undutiful:
Past all dishonour,
Death has left on her
Only the beautiful.

Still, for all slips of hers,
One of Eve's family—
Wipe those poor lips of hers
Oozing so clammily.

Loop up her tresses
Escaped from the comb,
Her fair auburn tresses;
Whilst wonderment guesses
Where was her home?

Who was her father?
Who was her mother?
Had she a sister?
Had she a brother?
Or was there a dearer one
Still, and a nearer one
Yet, than all other?

Alas! for the rarity
Of Christian charity
Under the sun!
Oh! it was pitiful!
Near a whole city full,
Home had she none.

Sisterly, brotherly,
Fatherly, motherly
Feelings had changed:
Love, by harsh evidence
Thrown from its eminence;
Even God's providence
Seeming estranged.

Where the lamps quiver
So far in the river,
With many a light
From window and casement,
From garret to basement,
She stood, with amazement,
Houseless by night.

The bleak wind of March
Made her tremble and shiver;
But not the dark arch,
Or the black flowing river:
Mad from life's history,
Glad to death's mystery,
Swift to be hurl'd—
Anywhere, anywhere
Out of the world!

In she plunged boldly,
No matter how coldly
  The rough river ran—
Over the brink of it,
Picture it—think of it,
  Dissolute Man!
Lave in it, drink of it,
  Then, if you can!

Take her up tenderly,
  Lift her with care;
Fashion'd so slenderly,
  Young, and so fair!

Ere her limbs frigidly
Stiffen too rigidly,
  Decently,—kindly,—
Smooth and compose them;
And her eyes, close them,
  Staring so blindly!

Dreadfully staring
  Thro' muddy impurity,
As when with the daring
Last look of despairing,
  Fixed on futurity.

Perishing gloomily,
Spurr'd by contumely,
  Cold inhumanity,
  Burning insanity,
Into her rest.—
  Cross her hands humbly,
  As if praying dumbly,
Over her breast!

Owning her weakness,
  Her evil behaviour,
And leaving, with meekness,
  Her sins to her Saviour!

DRYDEN.—*Johnson.*

For notices of Dryden and Johnson, see page 58.

Of the person of Dryden I know not any account; of his mind, the portrait, which has been left by Congreve, who knew him with great familiarity, is such as adds our love of his manners to our admiration of his genius. "He was," we

are told, "of a nature exceedingly humane and compassionate, ready to forgive injuries, and capable of a sincere reconciliation with those who had offended him. His friendship, where he professed it, went beyond his profession. He was of a very easy, of very pleasing access; but somewhat slow, and, as it were, diffident in his advances to others: he had that in nature which abhorred intrusion into any society whatever. He was therefore less known, and consequently his character became more liable to misapprehensions and misrepresentations: he was very modest, and very easily to be discountenanced in his approaches to his equals or superiors. As his reading had been very extensive, so was he very happy in a memory tenacious of everything that he had read. He was not more possessed of knowledge than he was communicative of it; but then his communication was by no means pedantic, or imposed upon the conversation, but just such, and went so far, as, by the natural turn of the conversation in which he was engaged, it was necessarily promoted or required. He was extremely ready and gentle in his correction of the errors of any writer who thought fit to consult him, and full as ready and patient to admit the reprehensions of others, in respect of his own oversights or mistakes."

The modesty which made him so slow to advance, and so easy to be repulsed, was certainly no suspicion of deficient merit, or unconsciousness of his own value: he appears to have known, in its whole extent, the dignity of his own character, and to have set a very high value on his own powers and performances. He probably did not offer his conversation, because he expected it to be solicited; and he retired from a cold reception, not submissive but indignant, with such deference of his own greatness as made him unwilling to expose it to neglect or violation.

His modesty was by no means inconsistent with ostentatiousness; he is diligent enough to remind the world of his merit, and expresses with very little scruple his high opinion of his own powers; but his self-commendations are read without scorn or indignation: we allow his claims, and love his frankness.

He has been described as magisterially presiding over the younger writers, and assuming the distribution of poetical fame; but he who excels has a right to teach, and he whose judgment is incontestable may, without usurpation, examine and decide.

Congreve represents him as ready to advise and instruct; but there is reason to believe that his communication was rather useful than entertaining. He declares of himself that he was saturnine, and not one of those whose sprightly sayings diverted company; and one of his censurers makes him say,—

"Nor wine nor love could ever see me gay;
To writing bred, I knew not what to say."

There are men whose powers operate only at leisure and in retirement, and whose intellectual vigour deserts them in conversation; whom merriment confuses, and objection disconcerts: whose bashfulness restrains their exertion, and suffers them not to speak till the time of speaking is past; or whose attention to their own character makes them unwilling to utter at hazard what has not been considered, and cannot be recalled.

Of Dryden's sluggishness in conversation it is vain to search or to guess the cause. He certainly wanted neither sentiments nor language; his intellectual treasures were great, though they were locked up from his own use. "His thoughts," when he wrote, "flowed in upon him so fast, that his only care was which to choose, and which to reject." Such rapidity of composition naturally promises a flow of talk; yet we must be content to believe what an enemy says of him, when he likewise says it of himself. But, whatever was his character as a companion, it appears that he lived in familiarity with the highest persons of his time. He was indeed reproached with boasting of his familiarity with the great: and Horace will support him in the opinion that to please superiors is not the lowest kind of merit.

The merit of pleasing must, however, be estimated by the means. Favour is not always gained by good actions or laudable qualities. Caresses and preferments are often bestowed on the auxiliaries of vice, the procurers of pleasure, or the flatterers of vanity. Dryden has never been charged with any personal agency unworthy of a good character: he abetted vice and vanity only with his pen. One of his enemies has accused him of lewdness in his conversation; but if accusation without proof be credited, who shall be innocent?

His works afford too many examples of dissolute licentiousness, and abject adulation; but they were probably, like his merriment, artificial and constrained; the effects of study and meditation, and his trade rather than his pleasure.

Of the mind that can trade in corruption, and can deliberately pollute itself with ideal wickedness for the sake of spreading the contagion in society, I wish not to conceal or excuse the depravity. Such degradation of the dignity of genius, such abuse of superlative abilities, cannot be contemplated but with grief and indignation. What consolation can be had, Dryden has afforded, by living to repent, and to testify his repentance.

NOTE.—*Congreve.*—A dramatic writer of the Restoration. Born, 1672; died, 1729.

COMPOSITION.—Write out the character of Dryden in your own words, as compendiously as you can.

A HYMN ON THE SEASONS.—*James Thomson.*

Born, 1700; died, 1748. See "Fifth Reader," p. 81.

THESE, as they change, Almighty Father, these,
Are but the varied God. The rolling year
Is full of thee. Forth in the pleasing spring
Thy beauty walks, thy tenderness and love.
Wide flush the fields; the softening air is balm;
Echo the mountains round; the forest smiles
And every sense, and every heart, is joy.
Then comes Thy glory in the summer months,
With light and heat refulgent. Then Thy sun
Shoots full perfection through the swelling year;
And oft Thy voice in dreadful thunder speaks—
And oft at dawn, deep noon, or falling eve,
By brooks and groves, in hollow-whispering gales.
Thy bounty shines in Autumn unconfined,
And spreads a common feast for all that lives.
In Winter, awful Thou! with clouds and storms
Around Thee thrown, tempest o'er tempest rolled,
Majestic darkness! On the whirlwind's wing
Riding sublime, Thou bidd'st the world adore,
And humblest Nature with Thy northern blast.

Mysterious round! what skill, what force divine,
Deep felt, in these appear! a simple train,
Yet so delightful, mix'd with such kind art,
Such beauty and beneficence combined;
Shade, unperceiv'd, so soft'ning into shade;
And all so forming an harmonious whole;

That, as they still succeed, they ravish still.
But wandering oft, with brute unconscious gaze,
Man marks not Thee, marks not the mighty hand,
That, ever busy, wheels the silent spheres;
Works in the secret deep; shoots, steaming, thence
The fair profusion that o'erspreads the Spring;
Flings from the sun direct the flaming day;
Feeds every creature; hurls the tempest forth;
And, as on earth this grateful change revolves,
With transport touches all the springs of life.

Nature, attend! Join, every living soul,
Beneath the spacious temple of the sky,
In adoration join; and, ardent, raise
One general song! To Him, ye vocal gales,
Breathe soft, whose Spirit in your freshness breathes:
Oh, talk of Him in solitary glooms!
Where, o'er the rock, the scarcely waving pine
Fills the brown shade with a religious awe.
And ye, whose bolder note is heard afar,
Who shake th' astonish'd world, lift high to heaven
The impetuous song, and say from whom you rage.
His praise, ye brooks, attune, ye trembling rills;
And let me catch it as I muse along.
Ye headlong torrents, rapid, and profound;
Ye softer floods, that lead the humid maze
Along the vale; and thou, majestic main,
A secret world of wonders in thyself,
Sound His stupendous praise; whose greater voice
Or bids you roar, or bids your roarings fall.
Soft roll your incense, herbs, and fruits, and flowers,
In mingled clouds to Him; whose sun exalts,
Whose breath perfumes you, and whose pencil paints.
Ye forests, bend, ye harvests, wave, to Him;
Breathe your still song into the reaper's heart,
As home he goes beneath the joyous moon.
Ye that keep watch in heaven, as earth asleep
Unconscious lies, effuse your mildest beams,
Ye constellations, while your angels strike,
Amid the spangled sky, the silver lyre.
Great source of day! best image here below
Of thy Creator, ever pouring wide,
From world to world, the vital ocean round,
On Nature write with every beam His praise.

The thunder rolls: be hush'd the prostrate world;
While cloud to cloud returns the solemn hymn.
Bleat out afresh, ye hills; ye mossy rocks,
Retain the sound: the broad responsive low,
Ye valleys, raise: for the Great Shepherd reigns;
And his unsuffering kingdom yet will come.
Ye woodlands all, awake: a boundless song
Bursts from the groves! and when the restless day,
Expiring, lays the warbling world asleep,
Sweetest of birds! sweet Philomela, charm
The listening shades, and teach the night His praise.
Ye chief, for whom the whole creation smiles,
At once the head, the heart, and tongue of all,
Crown the great hymn; in swarming cities vast,
Assembled men, to the deep organ join
The long resounding voice, oft breaking clear,
At solemn pauses, through the swelling base;
And, as each mingling flame increases each,
In one united ardour rise to heaven.
Or if you rather choose the rural shade,
And find a fane in every sacred grove;
There let the shepherd's flute, the virgin's lay,
The prompting seraph, and the poet's lyre,
Still sing the God of Seasons as they roll.
For me, when I forget the darling theme,
Whether the blossom blows, the Summer-ray
Russets the plain, inspiring Autumn gleams,
Or Winter rises in the blackening east,
Be my tongue mute, my fancy paint no more,
And, dead to joy, forget my heart to beat!

Should Fate command me to the farthest verge
Of the green earth, to distant barbarous climes,
Rivers unknown to song;—where first the sun
Gilds Indian mountains, or his setting beam
Flames on the Atlantic isles; 'tis nought to me:
Since God is ever present, ever felt,
In the void waste as in the city full;
And where He vital breathes * there must be joy.
When even at last the solemn hour shall come,
And wing my mystic flight to future worlds,
I cheerful will obey; there, with new powers,
Will rising wonders sing: I cannot go

* In Robert Bell's admirable edition of Thomson this is "*spreads.*"

Where Universal Love not smiles around,
Sustaining all yon orbs; and all their sons;
From seeming evil still educing good,
And better thence again, and better still,
In infinite progression.—But I lose
Myself in Him, in Light ineffable!
Come then, expressive Silence, muse His praise.

DEATH OF GUSTAVUS ADOLPHUS AT THE BATTLE OF LÜTZEN.—*Schiller.*

Gustavus Adolphus, King of Sweden, ascended the throne of that country in 1611, when he was only seventeen. Having headed the Protestants of Germany in their war of self-defence against Austria, which sought to crush Protestantism utterly, he raised its banner triumphantly aloft again by his victories when it was sinking. He was killed at the battle of Lützen, November 16, 1632. Lützen is a village in a wide plain 11 miles from Leipzic. Friedrich Schiller was born in 1759, at Marbach; died at Weimar, 1805. He was one of the greatest authors Germany has produced.

At last the dreaded morning appeared, but an impenetrable mist which lay over the whole field of battle, delayed the attack till noon. Meanwhile, the King, kneeling in front of his army, addressed himself to his devotions, and the whole of the troops followed his example. Presently he began one of Luther's hymns, which the whole army caught up, the field music accompanying. This ended, the King mounts his horse, dressed simply in a leathern doublet and sword belt, for an old wound prevented his wearing armour, and rides through the ranks, to rouse the hearts of the troops to a joyous confidence, which his own forebodings denied to himself. God with us was the battle cry of the Swedes: that of the Imperialists Jesus Maria. About eleven the mist began to break, and the enemy could be seen. Lützen was now visible in flames, the Duke having ordered it to be burned, to prevent his being outflanked on that side. The charge sounded, the cavalry dashed out against the enemy, and the infantry began its advance on the trenches.

Received with a frightful fire of musketry and cannon from the farther side, these brave troops, with undismayed courage, continued their attack; the enemy's musketeers fled from their posts, the trenches were crossed, the battery itself taken, and turned against the enemy. With irresistible force they still

pressed on; the first of the five Friedland brigades was routed, then the second, and the third was already wavering. But here the quick eye of the Duke arrested their advance. With the speed of light he was amongst his people, rallying his infantry, which once more stood firm at his word. Supported by three regiments of cavalry, the beaten brigades formed a new front and pressed in their turn against the broken ranks which assailed them. A dreadful struggle now began; there was no room for firing, nor time for loading; man fought with man, the musket gave place to the sword and the pike, and skill to fury. Overpowered by numbers, the wearied Swedes were at last forced back over the trenches they had won, and the battery they had taken was once more lost. Thousands of mutilated corpses already covered the ground, and yet not a foot of the field had been gained.

Meanwhile, the right wing of the King, led by himself, had fallen on the left of the enemy. Already the first terrible charge of the heavy Finland cuirassiers had scattered the lightly mounted Poles and Croats who were on that wing, and their disorderly flight carried fear and confusion among the rest of the cavalry. At this moment word reached the King that his infantry had been forced back over the trenches, and that his left wing was so distressed by the enemy's cannon at the windmill that it gave signs of wavering. With quick decision, ordering General von Horn to pursue the beaten left wing of the enemy, he himself hastened at the head of the Stenbock regiment, to counteract the disorder of his own left. His noble horse bore him over the trenches at a leap, but the crossing was harder for the squadrons behind, and only a few riders were able to keep at his side. Riding straight to the point where his infantry were hardest pressed, he looked round to see if there were any exposed post of the enemy on which he could direct an attack, and in doing this his short sight led him too near. An Imperialist officer noticed that all made respectful way for the cavalier who had first sprung over the trench, and ordered a musketeer to fire at him. "Fire on yon man," said he, "he must be a leader." The soldier obeyed, and the left arm of the King was shattered. At the same moment his squadrons came up, and a wild cry "the King is wounded"—"the King is bleeding," spread terror and dismay among them. "It is nothing—follow me," cried the King, gathering all his strength. But overpowered with pain and faintness, he begged the Duke of Lauenburg, in French, to lead him from the mêlée,

without letting it be seen. Taking a wide circuit to keep the depressing sight from the dispirited infantry, Lauenburg led the King round towards the right wing, but as he did so a second shot struck Gustavus in the back, and took the last remains of strength from him. "I have got enough, brother," cried he with a dying voice, "try to save your own life." Forthwith he sank from his horse, and, forsaken by all his attendants, and mangled by more bullets, breathed his last under the murderous hands of the Croats. His horse with its empty saddle, and bathed in blood, soon told the Swedish cavalry their King's fall, and instantly they rushed forward, glowing with fury, to rescue his corpse from the enemy. A murderous fight rose round his body, which had already been stripped, and was soon buried under a mound of dead.

The terrible news spread swiftly through the Swedish army, but instead of chilling the hearts of these brave troops, it rather kindled them to a new fierce consuming blaze. Life sinks in its value when the noblest of all lives has been taken, and death has no longer any terrors for the humble when it has not spared the crowned head. With lion fury the Upland, the Smaland, the Finnish, and the West Gothland regiments, threw themselves for the second time on the left wing of the enemy, which still feebly resisted General von Horn, but was now utterly driven from the field. At the same time Duke Bernhard, of Weimar, gave the Swedish army in his own person an able commander, and the spirit of Gustavus Adolphus again led on his victorious bands. The left wing was quickly set in order once more, and pressed with vigour on the right of the Imperialists. The battery at the windmill, which had rained such a murderous fire on the Swedes, fell into their hands, and its thunders were turned on the enemy themselves. The centre of the Swedes, now led by Bernhard and Knyphausen, again rushed over the trenches, and a second time took the seven-gun battery. The attack was also renewed with redoubled fury on the heavy battalions of the enemy's centre, which offered an even fainter resistance, fate itself conspiring with Swedish bravery to complete their ruin. Fire seized the Imperial powder waggons, and the heaped-up grenades and bombs flew into the air with the sound of thunder. The enemy thrown into confusion, fancied themselves attacked in the rear as well as in front, and their hearts failed them. Their left was beaten, their right on the point of giving way, their cannon in the hands of the Swedes. The crisis of the

battle had come; the fate of the day hung on a moment. But now appeared Pappenheim on the field, with cuirassiers and dragoons; and all the advantages gained were lost once more, and the battle must begin anew.

The command which summoned this general to Lützen, had reached him at Halle, while his people were busy sacking that town. It was hopeless to collect the scattered foot soldiers as quickly as his urgent orders or his impatience desired. Without waiting for them, therefore, he set off with eight regiments of cavalry, and hastened as fast as spurs could urge the horses, to Lützen to share in the carnival of battle. He came just in time to see the Imperialist left wing driven from the field, and to be himself mixed up with it. But with ready presence of mind he rallied the fugitives, and led them again on the Swedes. Urged by wild courage and anxious to fight with the King himself, whom he fancied to be at the head of this wing, he broke in a terrible charge on the Swedish bands, who, wearied with victory, and overpowered by numbers, were borne away by this flood of enemies, after a splendid resistance. Pappenheim's appearance, which had been despaired of, now rekindled the courage of the Imperialist infantry, and the Duke of Friedland took advantage of the favourable moment to form the line afresh. The closely packed Swedish battalions, after a murderous struggle, were forced over the trenches again, and the twice-lost cannon were again left behind. The whole Yellow Regiment, the bravest of all who this day showed their heroic valour, lay dead in their ranks on the spot which they had so magnificently defended. Another, a blue regiment, met the same fate, Count Piccolomini having cut it down with the Imperial cavalry, after a dreadful struggle. He had renewed the attack seven times, seven horses were shot under him, and he was wounded by six bullets. Yet he did not leave the field till carried away in the retreat of the whole army. The Duke was himself seen in the midst of a storm of balls calmly riding through his troops, sending help to those most in need of it, cheering the brave, and frowning on the wavering. His people were falling on all sides of him, and his own coat was pierced with many balls. But the avenging powers protected his breast that day, keeping him for another, for which the steel was already whetted. Wallenstein was not to die on the same bloody field as Gustavus.

Pappenheim, the most dreaded soldier of the house of Austria, was not so fortunate. A burning desire to meet the

King in fight urged him to the hottest of the battle, where he was most likely to find him. Gustavus himself had cherished the fiery hope to see this renowned antagonist face to face, but the soldierlike wish remained unfulfilled, and death first brought the now reconciled heroes together. Two musket balls pierced Pappenheim's scarred breast, and his people bore him, amidst his own resistance, from the slaughter.

While thus being borne to the rear the murmur reached him that he whom he had sought lay dead on the field. His face kindled when the news was confirmed, and the last fire shone in his eyes. "Tell the Duke of Friedland," said he, "that I am mortally wounded, but give up my life with joy when I know that the deadly enemy of my faith has fallen on the same day."

With Pappenheim the fortunes of the Imperialists finally vanished. As soon as he was missed, the cavalry of the left wing, which had already been beaten and which he alone had brought back to the fight, gave up all for lost, and fled in confusion. The same happened on the right, only a few regiments making a stand any longer. The Swedish infantry instantly took advantage of the confusion of their enemy. To fill up the gaps which had been made in the van, both lines joined into one for the final attack. For the third time they stormed over the ditches, and for the third time took the cannon behind. The sun was now setting, while the two armies were thus struggling with each other. The conflict grew fiercer as it came to its end. The last strength on each side did its utmost to redeem the few precious moments remaining of the whole lost day. At last night closed the struggle, which blind fury strove to continue, and only ceased when darkness hid the enemies from each other.

NOTES.—The battle of Lützen was an episode of the Thirty Years' War, which began in 1618, and was ended by the peace of Westphalia, in 1648. The war was a fatal result of the policy of Charles V. (1519-1558), who, from his election as Emperor of Germany, in 1519, till his abdication, in 1555, never ceased to stir up division and strife among the various states, that he might the better control all. Philip II., his son (1556-1598), though not Emperor of Germany, pursued the same policy, from bigotry, as his father had carried out for political ends. Under him Western Europe was drenched with the blood of Protestants, and Germany, disturbed by tyrants who sought to emulate him, had a constant and often a losing struggle to maintain, for the liberties secured to them by the Reformation. At last, under the Emperor Rudolph II. (1576-1612), the Jesuits got things into their hands, and sowed the seeds of religious discord on every hand in South and also in North Germany. In every direction they induced rulers to persecute Protestantism. At last a Protestant Union was formed on the one side, and a Catholic League on the other. War was now inevitable, if the Jesuit conspiracy to crush liberty were to be hindered from success, and it flamed out at last under the Emperor Ferdinand II. (1619-1637), as head of the Papalists, and Frederic V., of the Palatinate, as head of the Protestants. *The Duke.*—Albert

von Wallenstein, a Bohemian nobleman—the commander of the Imperialist (Roman Catholic) army. He was appointed to this dignity in 1625. He had already been made Duke of Friedland, for his earlier services in the wars, and now offered the Emperor to maintain 50,000 men, at his own cost, if the supreme command over the army, and over the countries that might be conquered, were left in his hand. His immense estates, and the rich gifts of the Emperor, enabled him to do this. His offer was accepted. He was a monster of cruelty, with little military genius. *Friedland brigades.*—Regiments raised on Wallenstein's possessions in Friedland, which is a district of Northern Bohemia. *Pappenheim.*—A famous Imperialist general, noted no less for his ferocity than for his wild bravery. *The steel was already whetted.*—Wallenstein was murdered by some of his officers, on the suspicion of his having conspired to overthrow the Emperor—a suspicion which appears to have been unfounded, and to have been merely a pretext invented by the monks and Jesuits round the Emperor, who hated Wallenstein as not devoted enough to the Church, but given to liberal thoughts in religion—a soldier in fact, rather than any thing else. The murder took place in 1634. Wallenstein's overgrown power was dreaded as possibly dangerous to the extreme Jesuit party, with whom murder was the habitual policy at that time, as we see in the case of William of Holland, and Henry IV. of France. The Thirty Years' War ended in the confirmation of the rights of Protestantism, the independence of the Netherlands, and the defeat of the Jesuit conspiracy. But Germany was so wasted and ruined that it has not even yet wholly recovered. Wallenstein forthwith, after the battle of Lützen, retreated, leaving his artillery, banners, &c., in the hands of the Swedes; thus owning their victory.

COMBAT OF THE COA.—*Sir W. Napier.*

For notice of Sir W. Napier, see "Fifth Reader," page 278.

A STORMY night ushered in the 24th of July. The troops, drenched with rain, were under arms before daylight, expecting to retire, when a few pistol shots in front, followed by an order for the cavalry reserves and the guns to advance, gave notice of the enemy's approach; and as the morning cleared, twenty-four thousand French infantry, five thousand cavalry, and thirty pieces of artillery were observed marching beyond the Turones. The British line was immediately contracted and brought under the edge of the ravine; but, meanwhile, Ney, who had observed Crawford's false disposition, came down with the swoop of an eagle. Four thousand horsemen and a powerful artillery swept the plain. The allied cavalry gave back, and Loison's division coming up at a charging pace, made towards the centre and left of the position.

While the French were thus pouring down, several ill-judged changes were made on the English side, part of the troops were advanced, others drawn back, and the forty-third regiment was placed within an enclosure of solid masonry, at least ten feet high, situated on the left of the road, with but one narrow outlet about half musket shot down the ravine. While thus imprisoned the firing in front re-doubled, the cavalry, the

artillery, and the caçadores successively passed by in retreat, and the sharp clang of the ninety-fifth rifles was heard along the edge of the plain above. A few moments later, and the forty-third would have been surrounded; but that here, as in every other part of this field, the quickness and knowledge of the battalion officers remedied the faults of the General. One minute sufficed to loosen some large stones, a powerful effort burst the enclosure, and the regiment, re-formed in column of companies, was the next instant up with the riflemen; there was no room to array the line, no time for anything but battle; every captain carried off his company as an independent body, and joining as he could with the ninety-fifth or fifty-second, the whole presented a mass of skirmishers, acting in small parties, and under no regular command; yet each confident in the courage and discipline of those on his right and left, and all regulating their movements by a common discretion, and keeping together with surprising vigour.

It is unnecessary to describe the first burst of French soldiery. It is well known with what gallantry the officers lead, with what vehemence the troops follow, and with what a storm of fire they waste a field of battle. At this moment, with the advantage of ground and numbers, they were breaking over the edge of the ravine, their guns ranged along the summit, played hotly with grape, and their hussars, galloping over the glacis of Almeida, poured down the road, sabring everything in their way. Ney, desirous that Montbrun should follow this movement with the whole of the French cavalry, and so cut off the troops from the bridge, sent five officers in succession to urge him on, and so mixed were friends and enemies at the moment, that only a few guns of the fortress durst open, and no courage could have availed against such overwhelming numbers. But Montbrun enjoyed an independent command, and, as the attack was made without Massena's knowledge, he would not stir. Then the British regiments, with singular intelligence and discipline, extricated themselves from their perilous situation. For falling back slowly, and yet stopping and fighting whenever opportunity offered, they made their way through a rugged country, tangled with vineyards, in despite of their enemies, who were so fierce and eager, that even the horsemen rode in amongst the enclosures, striking at the soldiers as they mounted walls or scrambled over the rocks.

The French skirmishers, swarming on the right bank, opened a biting fire, which was returned as bitterly; the artillery on

both sides played across the ravine, and the smoke, rising slowly, resolved itself into an immense arch, spanning the whole chasm, and sparkling with the whirling fuzes of the flying shells. The enemy gathered fast and thickly; his columns were discovered forming behind the high rocks, and a dragoon was sent to try the depth of the stream above, but two shots from the fifty-second killed horse and man, and the carcases, floating between the hostile bands, showed that the river was impassable. The monotonous tones of a French drum were then heard, and in another instant, the head of a noble column was at the long narrow bridge. A drummer and an officer in a splendid uniform leaped forward together, and the whole rushed on with loud cries. The depth of the ravine at first deceived the soldiers' aim, and two-thirds of the passage was won ere an English shot had brought down an enemy; yet a few paces onwards the line of death was traced, and the whole of the leading French section fell as one man! Still the gallant column pressed forward, but no foot could pass that terrible line; the killed and wounded rolled together until the heap rose nearly even with the parapet, and the living mass behind melted away rather than gave back.

The shouts of the British now rose loudly, but they were confidently answered, and, in half an hour, a second column, more numerous than the first, again crowded the bridge. This time, however, the range was better judged, and ere half the distance was won, the multitude was again torn, shattered, dispersed, and slain; ten or twelve men only succeeded in crossing, and took shelter under the rocks at the brink of the river. The skirmishing was renewed, and a French surgeon coming down to the very foot of the bridge, waved his handkerchief, and commenced dressing the wounded under the hottest fire; nor was his appeal unheeded: every musket turned from him, although his still undaunted countrymen were preparing for a third attempt. The impossibility of forcing the passage was, however, become too apparent, and this last effort, made with feebler numbers and less energy, failed almost as soon as it commenced.

NOTES.—*The Coa.*—A tributary of the Douro, flowing into it from the south: it is in Portugal. *The 24th of July*, 1810.—The Peninsular war began in July, 1808, and lasted till the abdication of Buonaparte, in 1814. In these years the British overthrew the French rule in Spain and Portugal, and drove the French back into France. Wellington was the British General-in-Chief. *The Twenes.*—A range of hills, from which there flows a tributary of the Coa. *Ney, Michel.*—A French Marshal—"the bravest of the brave." He was born in 1769, and was shot as a traitor (!) by the Bourbons, in 1814. His murder, after fighting

"100 battles for France,—not one against her," did great hurt to the restored dynasty which permitted it. *Crawford.*—A British General, killed at the assault of Ciudad Rodrigo, in 1812. *Loison.*—A French General. *Caçadores.*—Name for "Chasseurs" in the Portuguese army. Literally—hunters, really—cavalry, as with the French "Chasseurs." *Almeida.*—A Portuguese town on the Coa. *Montbrun.*—A French cavalry general. *Massena.*—A French marshal. Born at Nice, in 1756; died in 1817. He was a Jew, and a very able soldier.

COMPOSITION.—Write out the last paragraph, using different words.

ENID'S SONG.—*Tennyson.*

TURN, Fortune, turn thy wheel and lower the proud;
Turn thy wild wheel thro' sunshine, storm, and cloud;
Thy wheel and thee we neither love nor hate.

Turn, Fortune, turn thy wheel with smile or frown;
With that wild wheel we go not up or down;
Our hoard is little, but our hearts are great.

Smile and we smile, the lords of many lands;
Frown and we smile, the lords of our own hands;
For man is man and master of his fate.

Turn, turn thy wheel above the staring crowd;
Thy wheel and thou are shadows in the cloud;
Thy wheel and thee we neither love nor hate.

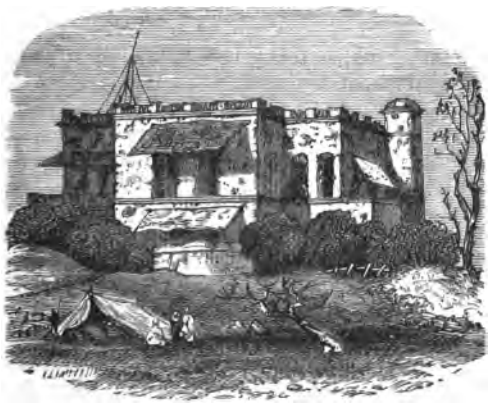
SIR HENRY LAWRENCE.—*Sir John William Kaye.*

Sir John William Kaye was born in 1814. He began life as an Indian lieutenant of artillery, 1835-45; entered the Indian Civil Service in 1856, and is now Secretary to a Department of the India Office. An admirable writer. Among his best known books is the delightful one from which this extract is taken, "Lives of Indian Officers." The biographies it contains make one proud of his country and race. He has also written a "History of the War in Affghanistan," &c.

ON the 2nd of July, as he was lying on his couch in an upper room of the Lucknow Residency, a shell burst beside him, and grievously shattered his thigh. His nephew, Mr. George Lawrence, immediately summoned Dr. Fayrer to his assistance,

and when Sir Henry saw him he asked at once how long he had to live. When the doctor answered, "about three days," he expressed astonishment that so long a term had been granted to him, and seemed to think that he should pass away before the end of it. As shot and shell were continually striking against the Residency, Dr. Fayrer caused the wounded man to be removed to his own house, which was more sheltered from the enemy's artillery, and there a consultation of medical officers was held, and it was determined that to attempt amputation would be only to increase suffering and to shorten life.

Then Henry Lawrence prepared himself for death. First of all, he asked Mr. Harris, the chaplain, to administer the Holy



The Residency, Lucknow.—East front.

Communion to him. In the open verandah, exposed to a heavy fire of musketry, the solemn service was performed, many officers of the garrison tearfully communicating with their beloved chief. This done, he addressed himself to those about him. "He bade an affectionate farewell to all," wrote one who was present at this sad and solemn meeting, "and of several he asked forgiveness for having at times spoken harshly, and begged them to kiss him. One or two were quite young boys, with whom he had occasion to find fault, in the course of duty, a few days previously. He expressed the deepest humility and repentance for his sins, and his firm trust in our blessed Saviour's atonement, and spoke most

touchingly of his dear wife, whom he hoped to rejoin. At the utterance of her name, his feelings quite overcame him, and he burst into an uncontrollable fit of weeping, which lasted some minutes. He again completely broke down in speaking of his daughter, to whom he sent his love and blessing. . . . Then he blessed his nephew George, who was kneeling by his bedside, and told him he had always loved him as his own son. . . . He spoke to several present about the state of their souls, urging them to pray and read their Bibles, and endeavour to prepare for death, which might come suddenly, as in his own case. To nearly each person present he addressed a few parting words of affectionate advice—words which must have sunk deeply into all hearts. There was not a dry eye there, and many seemingly hard rough men were sobbing like children."

And ever mingling, in these last hours, with the kindly and affectionate feelings of the man were the sterner thoughts of the leader. Passing away, as he was, from the scene, he had to make new arrangements for the future defence of the beleaguered garrison. He knew what was his duty, and though it pained him to set aside one who believed that he had the best right to succeed him in his civil duties, he chose his successor wisely. Then he urged upon the officer whom he had chosen, and all present, the imperative necessity of holding out to the very last, and of never making terms with the enemy. "Let every man," he said, "die at his post; but never make terms. God help the poor women and children." He often repeated these last words. His heart was very heavy with the thought of these helpless little ones, not knowing what dreadful lot might be in store for them.

He gave many sorrowing thoughts, also, to his foster-children in the Lawrence Asylum; and when he was not capable of uttering many words, from time to time he said, alternately with his prayers for the women and children,—"Remember the Asylum, do not let them forget the Asylum." He told the chaplain that he wished to be buried very privately, "without any fuss," in the same grave with any men of the garrison who might die about the same time. Then he said, speaking rather to himself than to those about him, of his epitaph—"*Here lies Henry Lawrence who tried to do his duty.*" "I should like, too, a text," he added, "'To the Lord our God belong mercies and forgivenesses, though we have rebelled against Him.' It was on my dear wife's tomb."

He lingered till the beginning of the second day, after he was stricken down, suffering occasionally acute paroxysms of pain, but having many blessed intervals of rest; and at last passed away very tranquilly, "like a little child falling asleep," about eight o'clock A.M. on the 4th of July, 1857.

NOTE.—*Henry Montgomery Lawrence* was the son of an Indian officer, and was born in Ceylon, in 1806. He was of Irish extraction. In 1821 he entered the service of the East India Company, and soon gained a great reputation for zeal and ability. He afterwards held various eminent posts. When the mutiny broke out in India, in 1857, he was Resident in Oude, that is, really, king of that province, under the Governor-General. When the Sepoys besieged the Residency, he defended it with the greatest skill and bravery, but was struck down, as here told. Henry Lawrence was a man of the finest intellect, an able statesman, a fine writer, a great administrator. As a soldier he was all that was noble and brave. As a man, his dying hours speak for him. The *Asylum* referred to was an institution founded and very liberally helped by him—for the Children of Soldiers. *John, Lord Lawrence*, late Governor-General of India and first chairman of the London School Board, is the brother of Sir Henry.

Grave of Lawrence.

HYMN TO THE SEA.—*Dean Alford.*

The Rev. Henry Alford, D.D., was born in 1810, and after various promotions became Dean of Canterbury, in 1857. He is best known by his edition of the Greek testament, 1841-1861; but he was not only a scholar,—his poems are of very great merit. He was also a copious writer in general literature. He died in 1870, lamented not only for his genius and culture, but, no less, for his public and private worth.

WHO shall declare the secret of thy birth,
Thou old companion of the circling earth?
And having reached with keen poetic sight
Ere beast or happy bird
Through the vast silence stirred,
Roll back the folded darkness of the primal night?

Corruption-like, thou teemedst in the graves
Of mouldering systems, with dark weltering waves
Troubling the peace of the first mother's womb;
Whose ancient awful form,
With inly-tossing storm,
Unquiet heavings kept—a birth-place and a tomb.

Till the life-giving Spirit moved above
The face of the waters, with creative love
Warming the hidden seeds of infant light:
What time the mighty word
Through thine abyss was heard,
And swam from out thy deeps the young day heavenly bright.

Thou and the earth, twin-sisters, as they say,
In the old prime were fashioned in one day;
And therefore thou delightest evermore
With her to lie and play
The summer hours away,
Curling thy loving ripples up her quiet shore.

She is a married matron long ago,
With nations at her side; her milk doth flow
Each year: but thee no husband dares to tame;
Thy wild will is thine own,
Thy sole and virgin throne;
Thy mood is ever changing—thy resolve the same.

Sunlight and moonlight minister to thee;
O'er the broad circle of the shoreless sea
Heaven's two great lights for ever set and rise:
While the round vault above,
In vast and silent love,
Is gazing down upon thee with his hundred eyes.

All night thou utterest forth thy solemn moan,
Counting the weary minutes all alone:
Then in the morning thou dost calmly lie,
Deep-blue, ere yet the sun
His day-work hath begun,
Under the opening windows of the golden sky.

The Spirit of the mountain looks on thee
Over an hundred hills; quaint shadows flee
Across thy marbled mirror; brooding lie
Storm-mists of infant cloud,
With a sight-baffling shroud
Mantling the gray-blue islands in the western sky.

Sometimes thou liftest up thine hands on high
Into the tempest-cloud that blurs the sky,
  Holding rough dalliance with the fitful blast,
    Whose stiff breath, whistling shrill,
    Pierces with deadly chill
The wet crew, feebly clinging to their shatteerd mast.

Foam-white along the border of the shore
Thine onward-leaping billows plunge and roar;
  While o'er the pebbly ridges slowly glide
    Cloaked figures, dim and gray,
    Through the thick mist of spray,
Watchers for some struck vessel in the boiling tide.

Daughter and darling of remotest eld,—
Time's childhood and Time's age thou hast beheld;
  His arm is feeble, and his eye is dim:
    He tells old tales again,
    He wearies of long pain:—
Thou art as at the first: thou journeyedst not with him.

A FABLE.—*W. M. Thackeray.*

William Makepeace Thackeray, one of the greatest English novelists, was born at Calcutta, in 1811. He was the son of a gentleman in the Civil Service of the East India Company. Brought to England in his childhood, he was educated at the Charter House School and at Cambridge, where he was the fellow student of Tennyson. His writings are marked by an exquisite purity of style, which is the fit mirror of their purity of thought and language. His wit, humour, truth to nature, wisdom, love of what is noble, and scorn of the reverse, are only some of his charms. His novels include "Esmond," "The Virginians," "Vanity Fair," "The Newcomes," from which this extract is taken, &c. He died suddenly, in bed, during the night of the 24th December, 1863.

A CROW, who had flown away with a cheese from a dairy-window, sate perched on a tree looking down at a great big frog in a pool underneath him. The frog's hideous large eyes were goggling out of his head in a manner which appeared quite ridiculous to the old black-a-moor, who watched the splay-footed slimy wretch with that peculiar grim humour belonging to crows. Not far from the frog a fat ox was browsing; whilst a few lambs frisked about the meadow, or nibbled the grass and buttercups there.

Who should come in to the farther end of the field but a

wolf. He was so cunningly dressed up in sheep's clothing that the very lambs did not know Master Wolf; nay, one of them, whose dam the wolf had just eaten, after which he had thrown her skin over his shoulders, ran up innocently towards the devouring monster, mistaking him for her mamma.

"He! he!" says a fox, sneaking round the hedge paling, over which the tree grew, whereupon the crow was perched looking down on the frog, who was staring with his goggle eyes fit to burst with envy, and croaking abuse at the ox. "How absurd those lambs are! Yonder silly little knock-knee'd baah-ling does not know the old wolf dressed in the sheep's fleece. He is the same old rogue who gobbled up little Red Riding Hood's grandmother for lunch, and swallowed little Red Riding Hood for supper. He he!"

An owl that was hidden in the hollow of the tree, woke up. "Oho, Master Fox," says she, "I cannot see you, but I smell you! If some folks like lambs, other folks like geese," says the owl.

"And your ladyship is fond of mice," says the fox.

"The Chinese eat them," says the owl, "and I have read that they are very fond of dogs," continued the old lady.

"I wish they would exterminate every cur of them off the face of the earth," said the fox.

"And I have also read, in works of travel, that the French eat frogs," continued the owl. "Aha, my friend Crapaud! are you there? That was a very pretty concert we sang together last night!"

"If the French devour my brethren, the English eat beef," croaked out the frog,—"great, big, brutal, bellowing oxen."

"Ho, whoo!" says the owl, "I have heard that the English are toad-eaters, too!"

"But whoever heard of them eating an owl or a fox, madam?" says Reynard; "or their sitting down and taking a crow to pick?" adds the polite rogue, with a bow to the old crow who was perched above them with the cheese in his mouth. "We are privileged animals, all of us; at least, we never furnish dishes for the odious orgies of man."

"I am the bird of wisdom," says the owl; "I was the companion of Pallas Minerva; I am frequently represented in the Egyptian monuments."

"I have seen you over the British barn-doors," said the fox, with a grin. "You have a deal of scholarship, Mrs. Owl. I know a thing or two myself; but am, I confess it, no

scholar—a mere man of the world—a fellow that lives by his wits—a mere country gentleman."

"You sneer at scholarship," continues the owl, with a sneer on her venerable face.

"I read a good deal of a night."

"When I am engaged deciphering the cocks and hens at roost," says the fox.

"It's a pity for all that you can't read; that board nailed over my head would give you some information."

"What does it say?" says the fox.

"I can't spell in the daylight," answered the owl; and, giving a yawn, went back to sleep till evening in the hollow of her tree.

"A fig for her hieroglyphics!" said the fox, looking up at the crow in the tree.

"What airs our slow neighbour gives herself! She pretends to all the wisdom; whereas your reverences, the crows, are endowed with gifts far superior to those benighted old big-wigs of owls, who blink in the darkness, and call their hooting singing. How noble it is to hear a chorus of crows! There are twenty-four brethren of the order of St. Corvinus, who have builded themselves a convent near a wood which I frequent; what a droning and a chanting they keep up! I protest their reverences' singing is nothing to yours! You sing so deliciously in parts, do for the love of harmony favour me with a solo!"

While this conversation was going on, the ox was chumping the grass; the frog was eyeing him in such a rage at his superior proportions, that he would have spurted venom at him if he could, and that he would have burst, only that is impossible, from sheer envy; the little lambkin was lying unsuspiciously at the side of the wolf in fleecy hosiery, who did not as yet molest her, being replenished with the mutton of her mamma. But now the wolf's eyes began to glare, and his sharp white teeth to show, and he rose up with a growl, and began to think he should like lamb for supper.

"What large eyes you have got!" bleated out the lamb, with rather a timid look.

"The better to see you with my dear."

"What large teeth you have got!"

"The better to ———"

At this moment such a terrific yell filled the field, that all its inhabitants started with terror. It was from a donkey,

who had somehow got a lion's skin, and now came in at the hedge, pursued by some men and boys with sticks and guns.

When the wolf in sheep's clothing heard the bellow of the ass in the lion's skin, fancying that the monarch of the forest was near, he ran away as fast as his disguise would let him. When the ox heard the noise, he dashed round the meadow-ditch, and, with one trample of his hoof, squashed the frog who had been abusing him. When the crow saw the people with guns coming, he instantly dropped the cheese out of his mouth, and took to wing. When the fox saw the cheese drop, he immediately made a jump at it (for he knew the donkey's voice, and that his asinine bray was not a bit like his royal master's roar), and making for the cheese, fell into a steel trap, which snapped off his tail; without which he was obliged to go into the world, pretending, forsooth, that it was the fashion not to wear tails any more; and that the fox party were better without 'em.

Meanwhile, a boy with a stick came up, and belaboured Master Donkey until he roared louder than ever. The wolf, with the sheep's clothing draggling about his legs, could not run fast, and was detected and shot by one of the men. The blind old owl, whirring out of the hollow tree quite amazed at the disturbance, flounced into the face of a ploughboy, who knocked her down with a pitch-fork. The butcher came and quietly led off the ox and the lamb; and the farmer, finding the fox's brush in the trap, hung it up over his mantelpiece, and always bragged that he had been in at his death.

COMPOSITION.—Write out as many synonyms as you can of the verbs and adjectives in the last two paragraphs.

LESSONS ON SPECIFIC SUBJECTS.

PHYSICS—OPTICS.

THE CAMERA OBSCURA.

1. The Camera Obscura* was invented by John Baptista Porter, of Naples, about three hundred years ago, the idea of it having been taken from the pictures of external objects which, after passing through the eye, are painted on the retina at the back of it.

When the sun is shining through a small hole, a round bright spot will be seen on anything held up as a screen behind it, and this spot will increase in size the farther the screen is held from the hole. This bright spot is, in fact, an *image* of the face of the sun painted on the screen by pencils of light proceeding from every point of its surface, and, by their concentration into a whole, forming an exact picture of it on the screen,—just as the pencils of light from any object, when they enter the eye, paint an exact image of it on the retina.†

In the same way, if a pinhole be made in a card and held between a candle and a piece of white paper in a dark room, an exact image of the flame of the candle will be thrown on the paper, the image showing the flame upside down, however. If the paper be removed farther from the light, the image will increase in proportion.

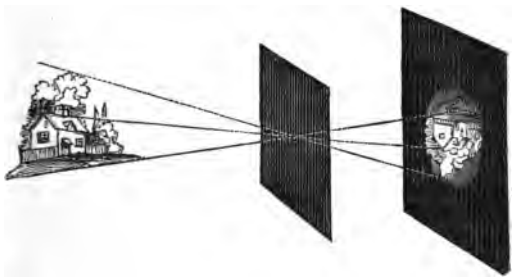


Fig. 31.

2. This principle of the power of light, under certain conditions, to paint images of external objects on any screen held up in a darkened chamber, is that on which the camera obscura is based. A striking illustration of

* Literally "dark chamber" (Latin).

† From *rete* (Latin), a net. A very fine network of branches of the optic nerve spread out at the back of the eye. See "Physiology and Health," by Dr. Cunningham Geikie.

it is seen (Fig. 31) if a white screen be put up a few feet from a small round hole in the shutter of a darkened room. An exact picture, upside down, of all objects outside, in their natural colours and forms, will be seen, objects in motion moving on it as in actual life.

3. Acting on the principle involved in this phenomenon, if we make a small hole C in the front of a box A B *m n*, and put the arrow M N before it, the rays from the end M will pass straight through the hole C, and illuminate the point *m* of the back of the box with their own colour; the rays from N will do the same at *n*; and all other points of M N will in like manner throw their rays on points directly opposite them, between *m* and *n*. The smaller the aperture C is made, the more distinct will be the picture, *m n*, of the object M N; but it will still be faint, as the hole C admits but a small number of the rays which emanate from every point of the object M N. If we enlarge the hole C, and substitute a lens L L, as in Fig. 33, we shall have an image or picture, *n m*, every way similar to that formed by the hole, but brighter and more distinct. Since all the rays that flow from M, such as M L, M L, and fall upon the lens L L, will be refracted to a focus at *m*, and all the rays from N to a focus at *n*, they will there paint a distinct picture of the points from which they come, and in like manner pictures of all intermediate points between M and N will be painted between *m* and *n*.

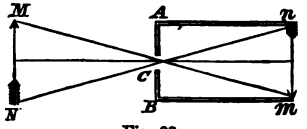


Fig. 32.

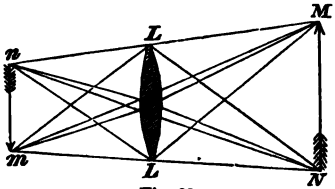


Fig. 33.

4. It is evident from Fig. 33 that this picture or image, *m n*, formed by a convex lens, must be inverted, for it is impossible that rays from the upper end M of the object can be refracted to the upper end of the image at *n*.

We can form an image of an object at any distance behind the lens, greater than its principal focus, and so make this image as large as we please, and in any proportion to the object. If we wish to have the image large we must bring the object near the lens, and if we wish to have it small we must remove the object farther from the lens, and these effects we can vary still more by using lenses of different focal distances.

5. The brightness of the image may be increased by increasing the size of the lens or the area of its surface. If a lens has a superficial area of eight square inches, it will intercept twice as many rays proceeding from every point of an object as if its area were only four square inches, so that when it is impracticable to increase the brightness of the object by illuminating it, we may increase the brightness of the image by using a larger lens.

6. We have supposed the image *m n* to be received on a smooth and white surface of paper, or other material, on which a picture of it is distinctly formed; but if we receive it upon ground glass, or upon a plate of glass one of whose sides is coated with a dry film of skimmed milk, and if we place our eye eight or ten inches behind this semi-transparent ground interposed at *m n*, we shall see the inverted image, *m n*, as distinctly as before. If we keep the eye in this position, and remove the semi-transparent ground, we shall see an image in the air distinctly, and brighter than before. The cause of this will be readily understood when we consider that all the rays which form by their convergence the points *m n* of the image *m n*, cross one another at *m n*, and diverge from these points in the same manner as they would from a real object of the same size and brightness placed at *m n*. The image *m n* may therefore be regarded as a new object; and by placing another lens behind it, another image of the image *m n* would be formed, exactly of the same size and in the same position as it would have been had *m n* been a real object. But since this secondary image of *m n* must be inverted as regards the first image, it will be erect in regard to the object M N, so that by using one or more lenses we can obtain inverted or direct images of any object at pleasure.

7. The CAMERA OBSCURA is nothing but a wooden box made to imitate a darkened chamber, with a proper lens or glass to concentrate the pencils of light, and make the picture more vivid and distinct. The glass is fixed on a sliding frame, which enables it to be drawn out to the proper length for making the picture perfect, and a piece of mirror is fixed at the opposite end of the box, at an angle of 45°, to throw up the picture on a piece of ground glass which is let into the top of the box, with a hinged wooden cover with wooden sides to it, alike to protect it and to shut out the light from outside. Fig. 34 shows the common box camera. The dotted lines mark the position of the mirror.

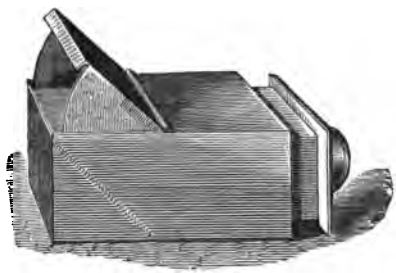


Fig. 34.

BURNING-GLASSES.

1. The use of the laws of the reflection and refraction of light to concentrate the sun's heat on a given object, so as to set it on fire, has been

long known. It is probable that the ancient Romans and Druids had a method of lighting their sacred fire by means of concave reflecting metal mirrors, and Archimedes is said to have burned the Roman fleet by this means. A burning-glass was presented to the Emperor of China when Lord Macartney visited Pekin, which melted a crystal pebble in 6 seconds, a piece of white agate in 30 seconds, and a cornelian in 75 seconds. It was 3 feet in diameter, and weighed 212 lbs. Its focal distance was 6 feet 8 inches, but this was generally shortened by a smaller lens.

2. The rays of the sun may also be brought to a point or focus by reflection from a concave mirror, or from a combination of mirrors. By a contrivance composed of 108 small flat mirrors, so arranged that they all reflected heat to the same spot, Buffon, the French naturalist, was able to set wood on fire at the distance of 209 feet, and to melt lead at 100 feet,

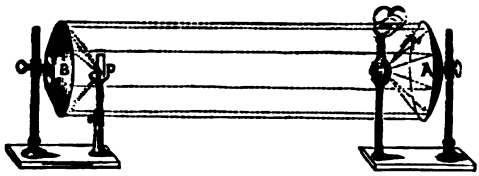


Fig. 35.

and silver at 50 feet. This is illustrated in Fig. 35, in which two concave mirrors are placed exactly opposite each other. If a hot body be placed at C, in the focus of the mirror A, all the rays which it sends to that mirror will be reflected in parallel lines, and will reach the other mirror thus, and be reflected by it so as to meet in the focus D. A red-hot iron ball placed in the focus of A will in this way set fire to any combustible, such as paper, gunpowder, &c., placed in the focus of B, though at a distance of 10 or 15 feet. From the same laws, a glass globe filled with water gathers the sun's rays into a focus, and hence it is dangerous to leave a gold-fish globe, or a decanter of water, near a window, in the full light of the sun, if the weather be bright and hot.

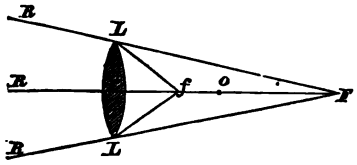


Fig. 36.

3. The principle by which a burning-glass produces such effects is, that it concentrates on a point, or focus, the heat as well as brightness of the rays of the sun.

Thus, when converging rays, or rays which proceed to one point, such as R L, R L (Fig. 36), are intercepted by, or fall upon, a convex lens L L, they will be refracted so as to converge to a point or focus *f*, nearer the lens than its principal focus *o*. As the point of convergence r recedes from the lens, the point *f* also recedes from it towards *o*, beyond

which it never goes; and as F approaches the lens, *f* also approaches to it. The points F and *f* are called conjugate foci, because the place of one varies with the place of the other, and, though every lens has but one principal focus, yet its conjugate foci are innumerable.

4. When diverging rays, or rays which proceed from one point, such as F (Fig. 37), fall upon a convex lens L L, whose principal focus is *o*, the refraction of the lens will cause them to converge to a focus *f*, beyond *o*. As the point F recedes from the lens, the focus *f* will approach to it, and when F is infinitely distant, as the sun may be said to be, or when the rays are parallel, *f* will coincide with *o*. If F approaches to *o*, the focus *f* will recede from *o*; and when F coincides with *o*, *f* will be infinitely distant, and the refracted rays will be parallel. When F is between *o* and C, the refracted rays will diverge. The points F and *f* are called conjugate foci, as in the case of converging rays.

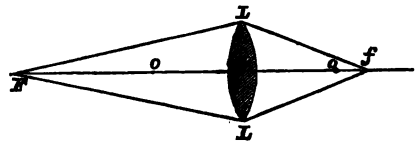


Fig. 37.

THE MAGNIFYING-GLASS.

1. In order to explain how lenses increase or magnify objects, and make them appear as if they were brought nearer to us, the reader must understand what is meant by the apparent magnitude of objects. If an eye placed at E looks at a man, *a b* (Fig. 38), placed at a distance, his general outline only will be seen, and neither his age, nor features, nor his dress will be distinguished. When he is brought gradually nearer to us we discover the separate parts of his dress, till, at the distance of a few yards, we perceive his features; and when he is brought still nearer we can observe the finest lines in his skin. At the distance E *b* the man is seen under the angle *b* E *a*, and at the distance E B he is seen under the greater angle B E A or *b* E A', and his apparent magnitudes, *a b*, A' *b*, are measured in those different positions by the angles *b* E *a*, B E A, or *b* E A'. The apparent magnitude of the smallest object may therefore be equal to the apparent magnitude of the greatest.

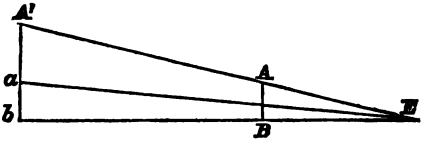


Fig. 38.

2. Let us now suppose the man *a b* to be placed at the distance of 100 feet from the eye at E, and that we place a convex glass of 25 feet focal

distance half-way between the man *a b* and the eye, that is, 50 feet from each, then an inverted image of the man will be formed 50 feet behind the lens, of the same size as the man, say 6 feet high. If this image is looked at by the eye placed 6 or 8 inches behind it, it will be seen quite distinct, and nearly as well as if the man had been brought from the distance of 100 feet to the distance of 8 inches from the eye, at which the details of his personal appearance can be examined. Now, in this case the man, though not actually magnified, has been apparently magnified, because his apparent magnitude has been increased in the proportion of 8 inches to 100 feet, or 150 times.

3. But if instead of a lens of 25 feet focal length we make use of a lens of a shorter focus, and place it in such a position between the eye and the man that its conjugate foci may be at the distance of 20 feet, and 80 feet from the lens, that is, that the man is 20 feet before the lens, and the image 80 feet behind it, then the size of the image is four times that of the object, and the eye placed 8 inches behind this magnified image will see it with great distinctness. In this case the image is magnified 4 times directly by the lens, and 150 times by being brought 150 times nearer the eye, so that its apparent magnitude will be 600 times larger than before.

4. If we use a lens of a still smaller focal length, and place it in such a position between the eye and the man that its conjugate foci may be at the distance of 75 feet, and 25 feet from the lens, that is, that the man is 75 feet before the lens, and his image 25 feet behind it, then the size of the image will be only one-third of the size of the man; but though the image is thus diminished three times in size, yet its apparent magnitude is increased 150 times by being brought within 8 inches of the eye, so that it is still magnified, or its apparent magnitude is increased $\frac{150}{3}$, or 50 times.

MICROSCOPES.

1. A microscope is an optical instrument for magnifying and examining minute objects. Microscopes may be divided into two classes, viz., simple and compound. The simple microscope, said to have been separately invented by Jansen and Drebell, is nothing more than a lens or sphere of any transparent substance, in the focus of which minute objects are placed for examination. The rays of light which proceed from each point of the object are refracted by the lens into parallel rays, which, on entering the eye, placed immediately behind the lens, affords distinct vision of the object.

The principle of the microscope has been already explained in describing the magnifying-glass, so that it is not necessary to repeat it.

2. Microscopes may be formed in a very simple manner, by inserting

drops of clear water in small apertures in a sheet of tin, or any thin solid substance. Sir David Brewster made them in this way with oils and varnishes; but the finest of all simple microscopes may be formed, he states, by forming minute plano-convex* lenses, upon glass, with different fluids. The spherical crystalline lenses of the eyes of minnows and other small fish form excellent microscopes, taking care that the observer looks through the lens in the same direction that the fish did.

A simple microscope, of very convenient form, consisting of a single lens, is shown in Fig. 39. This form of lens was invented by Sir David Brewster, although it has received the name of the Coddington lens, from its supposed invention by the mathematician of that name.

3. It is formed by cutting an angular groove round a solid globe of glass about half an inch in diameter, leaving two spherical surfaces, A B and C D, on opposite sides, uncut. The angular groove, A E C, B F D, is then filled up with opaque matter, the circular edge of the groove E F serving as a diaphragm between the two spherical surfaces. It is evident from the figure that the effect of the lens upon the rays o o will be the same wherever the point o may be situated; the lens, therefore, gives a large field equally well defined in all directions, and is very convenient as a hand and pocket glass. Sir David Brewster states, that when this lens is formed of garnet, and used in homogeneous† light, it is the most perfect of all lenses, either for single microscopes or for the object lenses of compound ones.

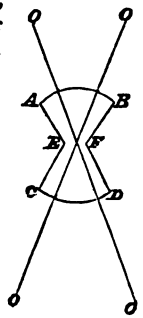


Fig. 39.

4. In its most simple form the compound microscope is composed of a magnifying lens or combination of lenses, by which an enlarged image of a minute object is produced, and another magnifying lens, or combination of magnifying lenses, by which such image is viewed as an object would be by a simple microscope.

The former is called the *object-glass*, or *objective*, as it is always immediately directed towards the object, which is placed very near to it; and the latter the *eye-glass*, or *eye-piece*, as the eye of the observer is applied to it to magnify the image of the object.

5. A combination of lenses forming a compound microscope is shown without the mounting, in Fig. 40, where o is the object, L the object-glass, and E the eye-glass. The object-glass is of very short focal length, and the object o is placed in its axis a little beyond its focus. An inverted image o o, of the object o, will be produced at a distance from the object-glass, L, much greater than the distance of o from it.

The observer will adjust the eye-glass E at such a distance from the image as will enable him to see it most distinctly. To estimate the entire

* With a flat and a convex side. † Of one kind.

magnifying power of such a microscope, we have only to multiply the magnifying power of the object-glass by that of the eye-glass. If, for example, the distance of the image o o from the object-glass L be ten times as great as the distance of the object from it, the linear dimensions of the image will be ten times greater than those of the object; and if the focal length of the eye-glass be half an inch, the distance of most distinct vision being 10 inches, the linear dimensions of o' o' will be twenty times those of o o, and consequently 200 times those of the

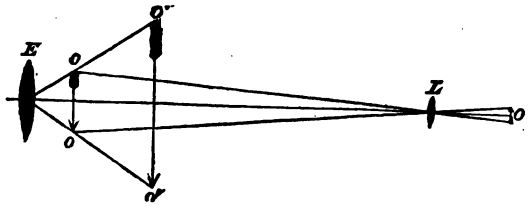


Fig. 40.

object; the linear magnifying power in such a case would be 200, and the superficial magnifying power 40,000.

The distance apart at which the eye-glass and object-glass are usually mounted is about ten or twelve inches, adjustments being provided by which the distance within certain limits can be varied.

THE TELESCOPE.

1. The telescope is an optical instrument for viewing distant objects, by increasing the apparent angle under which they are seen without its assistance; and hence the effect is an apparent increase in size, or a magnified representation of the object. The word "telescope" is derived from two Greek words, which signify "at a distance," and "I view." The invention of the telescope is one of the most important acquisitions the sciences ever attained, as it unfolds to our view the wonderful mechanism of the heavens, and enables us to obtain data for astronomical, nautical, and engineering purposes.

2. The principle is identical with that of the compound microscope. An image of the object is produced by means of a concave reflector or a converging lens, and this image is viewed with a microscope composed of one or more converging lenses. Telescopes consist, therefore, of two classes, reflectors and refractors; in the former the image is produced by concave reflectors, and in the latter by lenses.

3. The simplest construction of the telescope consists of two convex lenses so combined as to increase the apparent angle under which distant

objects are seen. If we take a convex lens, of say 8 inches' focus, as an object-glass, and another, of say 2 inches' focus, as an eye-glass, and place them at a distance apart equal to the sum of their foci, or 10 inches, we obtain a telescope suitable for viewing distant objects transmitting parallel rays; but when the object is comparatively near, the distance between the two lenses must be increased to adjust for distinct vision; on this account the eye-glass is mounted in a tube, sliding within another tube, in which the object-glass is fixed, and, therefore, can be drawn out for near objects.

4. The common *astronomical telescope*, shown in Fig. 41, is of the same principle of construction. It consists of two convex lenses A B, C D, the former of which is the object-glass, and the latter the eye-glass,

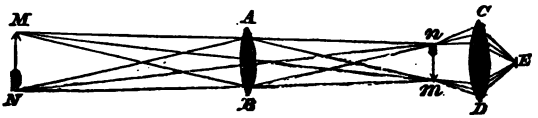


Fig. 41.

from being near the eye E. *m n* is an image of any distant object M N. Huygens made a telescope on this principle, of which the focus of the object-glass was 123 feet in length, and the diameter of the aperture 6 inches, the focal length of the eye-glass being 6½ inches. With instruments 12 and 24 feet long he discovered the ring and the fourth satellite of Saturn. In order to use object-glasses of great focal length without the incumbrance of long tubes, or incurring cost, Huygens placed the object-glass in a short tube at the top of a very long pole, so that the tube could be turned in any direction upon a ball and socket by means of a cord, and brought into the same line with another short tube containing the eye-glass which he held in his hand.

5. Sir William Herschel, after having constructed several reflecting telescopes varying from 7 to 20 feet in length, completed, in 1789, his 40 feet telescope, by which, on the very day it was finished, he discovered the sixth satellite of Saturn. The great speculum of this telescope measured 4 feet in diameter, and the area of its reflecting surface was consequently 12·566 square feet, its thickness being 3½ inches, and its weight 1,050 lbs. The open end of the telescope being directed to that part of the heavens under observation, and the speculum being fixed at its lower end, the observer was suspended in a chair, so as to be able to look over the lowest edge of the opening. As the speculum was a little inclined to the axis of the tube, the image was formed at about 2 inches from the lowest part of the edge of the opening, where it was viewed by the observer with suitable eye-pieces.

The great quantity of light obtained by this speculum or mirror enabled its celebrated constructor to use a magnifying power of 6,450

when examining the fixed stars; a power which greatly exceeded any that had been previously employed.

6. The telescope (Fig. 42) was mounted on a platform, which revolved horizontally, on rollers. It was placed between four ladders, which served both as a framework for its support and as a means of reaching the upper end of the great tube. The ladders were united at the upper ends by being bolted to a cross-bar, to which the pulleys were attached. The telescope

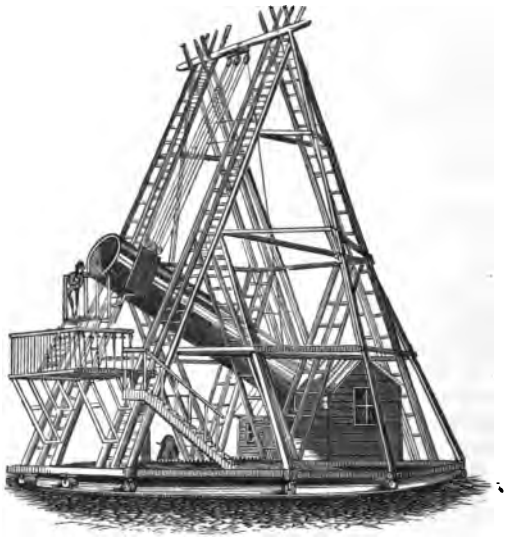


Fig. 42.—Herschel's Great Telescope.

was raised or lowered by one system of pulleys, and the gallery in which the observer stood by another. The pulleys were worked by a windlass placed on the platform. As the frame of this instrument had decayed, it was taken down and another telescope of smaller size erected in its place by Sir J. F. W. Herschel, with which many important observations have been made.

7. The largest and most powerful instrument of celestial investigation ever constructed was made by the late Lord Rosse, at Parsonstown, Ireland (Fig. 43). The clear aperture is six feet in diameter, and consequently the area of its reflecting surface is 28·274 square feet, whilst that of Herschel's great telescope was only 12·566 square feet. The tube is 52 feet in length. This instrument is so constructed that it may be used either as a Newtonian telescope—that is, the rays proceeding along the axis of the great speculum* are received at an angle of 45° upon a

* A metal mirror.

second small speculum, by which the image is thrown towards the side of the tube, where it is examined by the eye-piece—or otherwise. Two specula have been provided for the telescope, one of which weighs 3½ and the other 4 tons, composed of copper and tin, in the proportion of 126 parts, by weight, of the former, to 57½ of the latter.

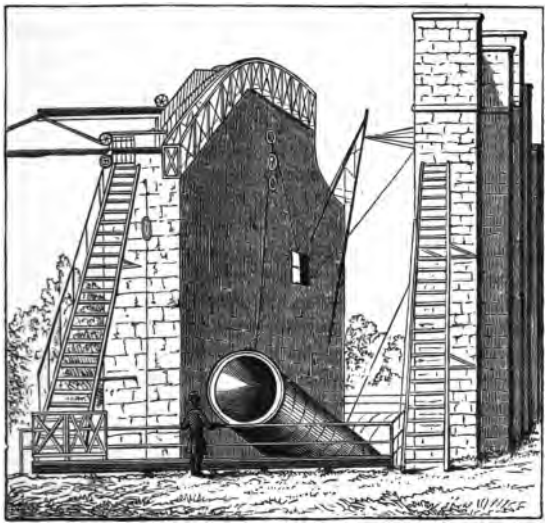


Fig. 43.—Lord Rosse's Telescope.

When directed towards the south the tube can be lowered until it is nearly horizontal; towards the north it can only be lowered to the altitude of the pole. It is so counterpoised as to be moved with ease in the required direction.

8. "I have enjoyed the great privilege of seeing this noble instrument," says Sir David Brewster, "one of the most wonderful combinations of art and science that the world has yet seen. I have in the morning walked again and again, and ever with new delight, along its mystic tube, and in the evening, with its distinguished inventor, pondered over the marvellous sights which it discloses—the satellites, and belts, and rings of Saturn; the old and the new ring, which is advancing with its crest of waters to the body of the planet; the rocks, and mountains, and valleys, and extinct volcanoes of the moon; the crescent of Venus, with its mountainous outline; the system of double and triple stars; the nebulæ and clusters of stars of every variety of shape; and those spiral nebular formations which baffle human comprehension, and constitute the greatest achievement of modern discovery."

ADAM AND EVE'S MORNING HYMN.—*John Milton.*

See "Fifth Reader," p. 215.

To the field they haste,
But first, from under shady arborous roof
Soon as they forth were come to open sight
Of dayspring and the sun, who, scarce uprisen
With wheels yet hovering o'er the ocean brim,
Shot parallel to the earth his dewy ray,
Discovering in wide landscape all the east
Of Paradise and Eden's happy plains,
Lowly they bow'd adoring, and began
Their orisons, each morning duly paid
In various style; for neither various style
Nor holy rapture wanted they to praise
Their Maker, in fit strains pronounced or sung
Unmeditated; such prompt eloquence
Flow'd from their lips, in prose or numerous verse
More tuneable than needed lute or harp
To add more sweetness; and they thus began:
These are thy glorious works, Parent of good,
Almighty! Thine this universal frame,
Thus wondrous fair: Thyself how wondrous then!
Unspeakable, who sitt'st above these heavens,
To us invisible, or dimly seen
In these thy lowest works; yet these declare
Thy goodness beyond thought, and power divine.
Speak, ye who best can tell, ye sons of light,
Angels, for ye behold him, and with songs
And choral symphonies, day without night,
Circle his throne rejoicing;—ye in heaven;—
On earth join all ye creatures to extol
Him first, him last, him midst, and without end
Fairest of stars, last in the train of night,
If better thou belong not to the dawn,
Sure pledge of day, that crown'st the smiling morn
With thy bright circlet; praise him in thy sphere,
While day arises, that sweet hour of prime.
Thou sun, of this great world both eye and soul,
Acknowledge him thy greater; sound his praise
In thy eternal course, both when thou climb'st,
And when high noon hast gain'd, and when thou fall'st.
Moon, that now meets the orient sun, now fly'st,

With the fix'd stars, fix'd in their orb that flies;
And ye, five other wandering fires, that move
In mystic dance not without song, resound
His praise, who out of darkness call'd up light.
Air, and ye elements, the eldest birth
Of nature's womb, that in quaternion run
Perpetual circle, multiform, and mix
And nourish all things; let your ceaseless change
Vary to our great Maker still new praise.
Ye mists and exhalations, that now rise
From hill or steaming lake, dusky or gray,
Till the sun paint your fleecy skirts with gold,
In honour to the world's great Author rise;
Whether to deck with clouds the uncoloured sky,
Or wet the thirsty earth with falling showers,
Rising or falling still advance his praise.
His praise, ye winds, that from four quarters blow,
Breathe soft or loud; and wave your tops, ye pines,
With every plant,—in sign of worship wave.
Fountains, and ye that warble, as ye flow,
Melodious murmurs,—warbling tune his praise.
Join voices, all ye living souls: ye birds,
That singing up to heaven-gate ascend,
Bear on your wings and in your notes his praise.
Ye that in waters glide, and ye that walk
The earth, and stately tread, or lowly creep;
Witness if I be silent, morn or even,
To hill, or valley, fountain, or fresh shade,
Made vocal by my song, and taught his praise.
Hail, universal Lord! be bounteous still
To give us only good; and if the night
Have gather'd aught of evil or conceal'd,
Disperse it, as now light dispels the dark.

NOTES.—*Arborous.*—Formed by trees. *Orisons.*—Prayers (Fr., *oraison*; l., *oro—oratum*, to pray). *Numerous.*—Here,—flowing in numbers. *Fairest of Stars.*—The Morning Star. In Milton's day one star was thought to shine as the Morning Star; but while Venus and Mercury are most often intended by this name, other planets—Mars, Jupiter, Saturn—are, from time to time, morning stars as well. *The Fixed Stars.*—It was thought, in Milton's day, and till recently, that while the planets moved, the other heavenly bodies were fixed. This is a mistake, however, since all the orbs of heaven are in swift motion in their orbits. *Their orb, that flies.*—In the Ptolemaic astronomy, still current in Milton's day, the fixed stars were set in spheres or orbs, which themselves moved, while the stars were passively borne along. *Five other Wandering Fires.*—The Ptolemaic system had only five planets. *Elements, &c.*—In Milton's day the elements were thought to be four—fire, air, earth, water; but the first is only a condition of matter, not a substance, and the other three are compound bodies. A quaternion is a group of four. The motions of the elements in innumerable circles were supposed to be the quickening and sustaining force of nature.

THE GREATNESS OF THE BRITISH EMPIRE.—*Anon.*

1874.

THE QUEEN rules an Empire larger in its area, wider in its geographical distribution, and vaster in its population, than any Empire of ancient or modern times. If we cannot say of it as Gibbon does of the Roman Empire in his opening sentence, that it comprehends "the fairest part of the earth and the most civilised portion of mankind," his "image of the greatness of Rome" is utterly eclipsed by the simple enumeration of the subjects of the British Monarchy in an official census. One colony alone dwarfs the Empire to insignificance. "It was supposed to contain," says Gibbon, in the closing words of his first chapter, "above sixteen hundred thousand square miles, for the most part of fertile and well-cultivated land." The Dominion of Canada alone contains more than twice this area, or 3,876,925 square miles; the Australian Colonies have 2,960,722 square miles of territory; while India and Ceylon stand for nearly a million.

Smaller portions of the Empire are dotted all over the globe. The little island of Heligoland, the rock of Gibraltar, the military station of Malta, with the great group of islands clustered round the United Kingdom in the British seas, are our European territory. Travelling thence westward with the sun, the first land across the Atlantic is English, whether we sight Newfoundland in the north or the "still vexed Bermoothes" in the south. Beyond the Bermudas lie the beautiful West India Islands, and a further step takes us to British Honduras on the mainland of Central America. In South America we have British Guiana at the northern corner, and the Falkland Isles near the southern extremity of the continent. Recrossing the Atlantic we touch at St. Helena and Ascension, and then find before us the West African Settlements on the Gold Coast and the Coast of Guinea. In South Africa the Cape of Good Hope, Griqualand West, and Natal are all flourishing colonies of Englishmen. The Seychelles archipelago and the Mauritius are like stepping stones in the Indian Sea from which the Empire strides to India and Ceylon in the north, and Australia in the south. The British Empire thus puts a girdle round about the world. The area of the territory so widely spread is

7,769,469 square miles, and the number of persons who inhabit it is 284,762,593.*

The greater portion of this population is in India and Ceylon. These countries, "inhabited largely," to quote the Registrar-General's Report, "by Aryan or Semitic stocks, that have given abundant evidence of courage, culture, skill, and industry," contain 962,820 square miles; less than a seventh of the whole area; but the population is 191,307,070. This vast multitude, professing many religions, speaking many languages, and split up into many races, dwells in 487,061 villages, and has 66,341,914 separate dwellings. Rather more than one-half of them live by the culture of the soil, though even in India the tendency to gather into great cities is a marked feature of the social state. There are fifteen Indian cities, each of which contains more than 100,000 inhabitants. Calcutta, with its suburban town, has 794,645; Bombay has 644,405; and Madras has 397,552. These are the three great cities of the East. Lucknow stands next, with 284,779 inhabitants; while in the fertile North-West Provinces Benares, the Holy City of the Hindoos, has 173,352; Allahabad, at the confluence of the Jumna and the Ganges, has 105,926; Cawnpore, the city of painful memories, has 113,601; Agra, the monumental city of Shah Jehan, on the banks of the Jumna, has 142,661; and Bareilly, 105,649 in the town and cantonments. The old metropolis of the Moguls, Delhi, has 154,417 inhabitants; Amritsur, "the Pool of Immortality," and the chief city of the Sikh religion, has 135,813; and Rangoon, the capital of British Burmah, has 100,000. Patna, in the midst of the province of Behar, contains 158,900 people.

It curiously illustrates the difference between Eastern and Western civilisation that, whereas in the West women somewhat preponderate, in India the males are 98 millions to 92 million females. The Registrar-General suggests that the latter number is under-stated; and the nature of social life in India renders it more difficult to check census returns, in this particular, than it is in this country. There is, however, no reason to doubt that among this unadventurous population, this home-keeping and home-loving people, men predominate.

The religious census was only taken for 144 millions. Of these less than two hundred thousand were Christians, ninety-

* There are 38 persons to a square mile in the Empire, 260 in the United Kingdom 201 in India, and 1·41 in the colonies. In some parts of India the density of the population more than equals that of England.

seven millions were Hindoos, thirty-six millions Mohammedans, two millions and a quarter Buddhists, and nine millions were of other faiths. The Hindoo religion is therefore largely predominant, and that of the Seer of Mecca is the only one which seriously holds that predominance in check.

It is very instructive to turn from this marvellous spectacle of a dense and docile population dwelling in the oldest of old world lands, to the two new worlds over which Englishmen have spread not only their Empire, but their language, their race, and their institutions. In the Southern hemisphere the vast island continent of Australia is all before the emigrant where to choose his place of work. The vast expanse of 2,854,463 square miles is peopled by only 1,669,202 persons. New Zealand—the England, as it is called, of the Southern hemisphere—is the youngest born of the colonies, and the most progressive. The Census Report of the Registrar-General, from which all these figures are taken, describes it as having "the moist and luxurious climate of England, with more warmth, mountains of Alpine grandeur, luxuriant vegetation, and veins of the precious metals." It is only one-fifth less in area than the United Kingdom, and its population is 256,393, "perhaps as numerous," the Report says, "as the population of Great Britain at the time of Cæsar's invasion."

At the opposite end of the world are the yet vaster colonies of North America—a small nucleus of cultivated and populated territory, of some 350,188 square miles, or ten times as large as Scotland, with a population of 3,485,761. Beyond this lie the vast territories of Manitoba and British Columbia, with 2,750,000 square miles of land, very thinly peopled, some of it described by one of the latest travellers as a great lone land, where the traveller meets not a soul for days. The vast territory lately ruled by the Hudson's Bay Company is not included in the census, but lies, like a huge reserve, to be occupied and subdued when climatic conditions shall have modified at the approach of civilisation, and the empty spaces of the continent shall have been filled to overflowing. Meanwhile, the whole colonial territory, nearly four times as large as British India, has about as many inhabitants as London. The population of the Dominion, including the 300 islands of the Bermudas, and exclusive of British Columbia and Manitoba and the North-west, is 3,789,670. The largest city is Montreal, which has 107,225 inhabitants; Quebec is next, with 59,699; and Toronto next, with 56,092. These vast countries

which thus lie open before the English people, give room for an extension of our language, our literature, and our free institutions such as the world has never seen before. There seems to be no reason why we may not look forward to a time when these vast and fertile lands will be as populous as the great Indian plains, or even as our own island, and when, whether under one government or many, British communities will form the greatest aggregate population of one race and language on the surface of the globe.

NOTE. — *Shah Jehan*, or Jehander, — 1713-1718. He built the Taj, at Agra, the finest architectural creation in India.

COMPOSITION.—Write out a compendious epitome of this extract.

"COME DOWN, O MAID, FROM YONDER MOUNTAIN HEIGHT."—*Tennyson.*

COME down, O maid, from yonder mountain height:
What pleasure lives in height (the shepherd sang),
In height and cold, the splendour of the hills?
But cease to move so near the Heavens, and cease
To glide a sunbeam by the blasted Pine,
To sit a star upon the sparkling spire;
And come, for Love is of the valley, come,
For Love is of the valley, come thou down
And find him; by the happy threshold, he,
Or hand in hand with Plenty in the maize,
Or red with spirted purple of the vats,
Or foxlike in the vine; nor cares to walk
With Death and Morning on the silver horns,
Nor wilt thou snare him in the white ravine,
Nor find him dropt upon the firths of ice,
That huddling slant in furrow-cloven falls
To roll the torrent out of dusky doors:
But follow; let the torrent dance thee down
To find him in the valley; let the wild
Lean-headed Eagles yelp alone, and leave
The monstrous ledges there to slope, and spill
Their thousand wreaths of dangling water-smoke,
That like a broken purpose waste in air:
So waste not thou; but come; for all the vales
Await thee; azure pillars of the hearth

Arise to thee: the children call, and I
Thy shepherd pipe, and sweet is every sound,
Sweeter thy voice, but every sound is sweet;
Myriads of rivulets hurrying thro' the lawn,
The moan of doves in immemorial elms,
And murmuring of innumerable bees.

SUNSHINE ENTOMBED.—*Professor Roscoe.*

Professor Roscoe is one of the able staff of Owen's College, Manchester. He is the author of various admirable scientific books.

GEORGE STEPHENSON and a friend were once looking at a train which was rushing along. The trains in those days were not so common as they are now, and George asked his friend what he thought propelled or drove the train along. His friend answered, "Probably the arm of some stalwart, north-country driver." "No," said George, "it is the heat and light of the sun which shone millions of years ago, which has been bottled up in the coal all this time, and is now driving that train." What did he mean? Can we get an idea whether that extraordinary statement is true—that it is really the heat and light of the sun which is driving the train? I want to try and make that plain to you. What is the coal that we put under the steam-engine? A pound of coal, if we could convert the whole of the heat which it is capable of producing into mechanical power, would jump up two thousand miles high. Now, where did that coal come from? What has that coal been? These are questions which we all may ask ourselves. The coal really was at one time a living plant; the coal, or the constituents of the coal, composed a living plant that grew in the bright sunshine on the surface of this earth, not buried as it is now, below a thousand feet of rock, but living in and enjoying the bright sunshine, as the trees nowadays do when the sun shines here. Well, how did these coal plants grow? They grew, as all plants only can grow, by the sunshine. If we take away the sunshine, plants cannot flourish. You cannot grow plants in a cellar, because there is no sunshine. Put plants in a window, and see how they creep up to the light. That is because the light is absolutely necessary for their growth; they cannot grow without the sunlight. So our coal plants could not grow without the sunlight. Remember it is the sunlight which enables it to take its food—namely,

the carbon—from the air by decomposing the carbonic acid which the air contains. This it can only do by the help of the sunlight. Now, a certain definite amount of light and heat must shine upon the plant before it can gain one pound in weight, before one pound of the stem, or leaf, or branch of that plant can be formed. A certain definite amount of force, as light and heat, must shine upon the plant, and be used up in decomposing the carbonic acid of the air. What happens if we burn a plant? Why, that definite amount of force as light and heat comes out again, and we get absolutely the same amount of heat out of a piece of coal when burnt as was necessarily used up ages ago in order that that coal should be formed.

COMPOSITION.—Write out an explanation of the facts on botany and chemistry in this lesson, from the sections in the PUBLIC SCHOOL READERS, on these sciences.

MARTIN LUTHER.—*Carlyle.*

LUTHER'S birthplace was Eisleben, in Saxony; he came into the world there on the 10th of November, 1483. It was an accident that gave this honour to Eisleben. His parents, poor mine-labourers in a village of that region, named Mohra, had gone to the Eisleben winter fair: in the tumult of this scene the Frau Luther was taken with travail, found refuge in some poor-house there, and the boy she bore was named Martin Luther.

Richter says of Luther's words: "His words are half-battles." They may be called so. The essential quality of him was, that he could fight and conquer; that he was a right piece of human valour. No more valiant man, no mortal heart to be called braver, that one has record of, ever lived in that Teutonic kindred, whose character is valour. His defiance of the "devils" in Worms was not a mere boast, as the like might be if now spoken. It was a faith of Luther's that there were devils, spiritual denizens of the pit, continually besetting men. Many times in his writings this turns up; and a most small sneer has been grounded on it by some. In the room of the Wartburg, where he sat translating one of the Psalms, he was worn down with long labour, with sickness, abstinence from food: there rose before him some hideous, indefinable image, which he took for the evil one, to

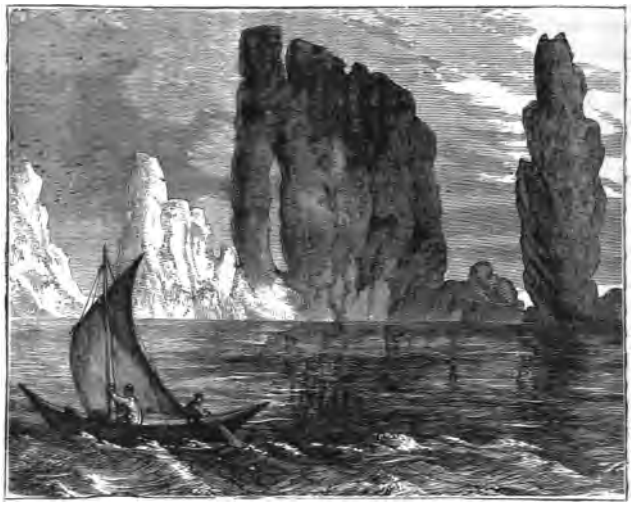
forbid his work. Luther started up with fiend-defiance, flung his inkstand at the spectre, and it disappeared! The spot still remains there, a curious monument of several things. Any apothecary's apprentice can now tell us what we are to think of this apparition in a scientific sense: but the man's heart that dare rise defiant, face to face, against Hell itself, can give no higher proof of fearlessness. The thing he will quail before exists not on this earth or under it.

Fearless enough! "The devil is aware," writes he on one occasion, "that this does not proceed out of fear in me. I have seen and defied innumerable devils. Duke George," of Leipzig, a great enemy of his, "Duke George is not equal to one devil, far short of a devil. If I had business at Leipzig, I would ride into Leipzig, though it rained Duke Georges for nine days running." What a reservoir of dukes to ride into! At the same time they err greatly who imagine that this man's courage was ferocity, mere coarse, disobedient obstinacy and savagery, as many do. Far from that. There may be an absence of fear which arises from the absence of thought or affection, from the presence of hatred and stupid fury. We do not value the courage of the tiger highly! With Luther it was far otherwise; no accusation could be more unjust than this of mere ferocious violence brought against him. A most gentle heart withal, full of pity and love, as indeed the truly valiant heart ever is. The tiger before a stronger foe flies. The tiger is not what we call valiant, only fierce and cruel. I know few things more touching than those soft breathings of affection, soft as a child's or a mother's, in this great wild heart of Luther. So honest, unadulterated with any cant; homely, rude in their utterance, pure as water welling from the rock. What, in fact, was all that down-pressed mood of despair and reprobation, which he suffered in his youth, but the outcome of pre-eminent thoughtful gentleness, affections so keen and fine? It is the course such men as the poor poet Cowper fall into. Luther, to a slight observer, might have seemed a timid, weak man; modesty, affectionate, shrinking tenderness the chief distinction of him. It is a noble valour which is roused in a heart like this, once stirred up into defiance, all kindled into a heavenly blaze.

Once he looks out from his solitary Patmos, the castle of Coburg, in the middle of the night. The great vault of Immensity, long flights of clouds sailing through it, dumb, gaunt, huge,—who supports all that? "None ever saw the

pillars of it, yet it is supported." God supports it, we must know that God is great, that God is good, and trust where we cannot see. Returning home from Leipzig once, he is struck by the beauty of the harvest fields. How it stands, that golden yellow corn, on its fair taper stem, its golden head bent, all rich and waving there,—the meek earth, at God's kind bidding, has produced it once again, the bread of man! In the garden at Wittenberg one evening at sunset, a little bird has perched for the night. "That little bird," says Luther, "above it are the stars and deep Heaven of worlds; yet it has folded its little wings, gone trustfully to rest there as in its home: the Maker of it has given it too a home." Neither are mirthful turns wanting; there is a great, free, human heart in this man. The common speech of him has a rugged nobleness, idiomatic, expressive, genuine; gleams here and there with beautiful poetic tints. One feels him to be a great brother-man. His love of music, indeed, is not this, as it were, the summary of all these affections in him? Many a wild unutterability he spoke forth from him in the tones of his flute. The devils fled from his flute, he says. Death-defiance on the one hand, and such love of music on the other, I could call these the two opposite poles of a great soul: between these two all great things had *room*.

NOTES.—*Luther.*—See notes, page 119. *Eisleben.*—A town of Prussian Saxony, in a hilly district, full of silver and copper mines. Population, 12,000. *Richter.*—See page 109. *Teutonic.*—See page 9. *Worms.*—A city of Germany, on the Rhine, 25 miles from Mayence. Luther appeared before the Diet of the Empire, held in it in 1521. Worms was burnt down by the French in 1689, by order of Louis XIV. Till that time it was a city of 60,000 inhabitants, but it has, now, only about 10,000. The whole Palatinate of the Rhine suffered a similar ruin and devastation from the French in that year. *The Wartburg.*—A castle on a height, near Eisenach, in Thuringia. Luther was taken to it for safety, after the Diet of Worms, in April, 1521, and remained hidden securely in it for ten months. He used to call it his *Patmos.* *Cowper*, William.—A famous English poet. He was born at Berkhampstead, in 1731, and died at Dereham, in Norfolk, 1800. His finest poem is "The Task." *Coburg.*—The Wartburg is in the Duchy of Saxe Coburg-Gotha. *Leipsic.*—A large city of Saxony. Population, 75,000. It has a famous university, and is the centre of the book trade in Germany. Luther was often there. *Wittenberg.*—"The cradle of the Reformation." A town of Prussian Saxony, on the Elbe, about 40 miles north of Leipsic. Luther was a Professor in the University of the town, when, in 1517, he began the Reformation by opposing Tetzel and the Sale of Indulgences. He is buried, alongside of Melancthon, in the university church. The district is flat and sandy.



Rocks worn by the Sea, &c., St. Magnus Bay, Shetland.

VOLCANOS AND EARTHQUAKES.—*Sir John Herschel.*

For notice of Sir John Herschel, see "Fifth Reader, Public School Series," page 264.

We see everywhere, and along every coast-line, the sea warring against the land, and everywhere overcoming it, wearing and eating it down, and battering it to pieces, grinding those pieces to powder, carrying that powder away, and spreading it out over its own bottom, by the continued effect of the tides and currents. Look at our chalk cliffs, which once, no doubt, extended across the Channel to the similar cliffs on the French coast. What do we see? Precipices cut down to the sea-beach, constantly hammered by the waves and constantly crumbling, the beach itself made of the flints outstanding after the softer chalk has been ground down and washed away, themselves grinding one another under the same ceaseless discipline, first rounded into pebbles, then worn into sand, and then carried out farther and farther down the slope, to be replaced by fresh ones from the same source.

Well, the same thing is going on *everywhere, round every coast* of Europe, Asia, Africa, and America. Foot by foot or inch by inch, month by month or century by century, *down everything* MUST *go.* Time is as nothing in geology. And what the sea is doing the rivers are helping it to do. Look at the sand-banks at the mouth of the Thames. What are they but the materials of our island carried out to sea by the stream? The Ganges carries away from the soil of India, and delivers into the sea, as much solid substance *daily* as is contained in the great pyramid of Egypt. The Irawaddy sweeps off from Burmah 62 cubic feet of earth in every second of time on an average, and there are 86,400 seconds in every day, and 365 days in every year, and so on for the other rivers. What has become of all that great bed of chalk which once covered all the weald of Kent, and formed a continuous mass from Ramsgate and Dover to Beachy Head, running inland to Madamscourt Hill and Seven Oaks? All clean gone, and swept out into the bosom of the Atlantic, and there forming other chalk-beds. Now, geology assures us, on the most conclusive and undeniable evidence, that ALL our present land, all our continents and islands, have been formed in this way out of the ruins of former ones. The old ones which existed at the beginning of things have all perished, and what we now stand upon has most assuredly been, at one time or other, perhaps many times, the bottom of the sea.

Well, then, there is power enough at work, and it has been at work long enough, utterly to have cleared away and spread over the bed of the sea all our present existing continents and islands, had they been placed where they are at the creation of the world; and from this it follows, as clear as demonstration can make it, that without *some* process of renovation or restoration to act in antagonism to this destructive work of old Neptune, there would not now be remaining a foot of dry land for living thing to stand upon.

Now, what *is* this process of restoration! Let the volcano and the earthquake tell their tale. Let the earthquake tell how, within the memory of man—under the eyesight of eye-witnesses, one of whom (Mrs. Graham) has described the fact—the whole coast line of Chili, for 100 miles about Valparaiso, with the mighty chain of the Andes—mountains to which the Alps shrink into insignificance—was hoisted at one blow (in a single night, Nov. 19, A.D. 1822), from two to seven feet above its former level, leaving the beach below

the old low water-mark high and dry, leaving the shell-fish sticking on the rocks out of reach of water, leaving the seaweed rotting in the air, or rather drying up to dust under the burning sun of a coast where rain never falls. The ancients had a fable of Titan hurled from heaven and buried under Etna, and by his struggles causing the earthquakes that desolated Sicily. But here we have an exhibition of Titanic forces on a far mightier scale. One of the Andes upheaved on this occasion was the gigantic mass of Aconcagua, which over-

Effects of an Earthquake at Arica, Peru.

looks Valparaiso. To bring home to the mind the conception of such an effort, we must form a clear idea of what sort of mountain this is. It is nearly 24,000 feet in height. Chimborazo, the loftiest of the volcanic cones of the Andes, is lower by 2,500 feet; and yet Etna, with Vesuvius at the top of it, and another Vesuvius piled on that, *would little more than surpass the midway height of the snow-covered portion of that cone*, which is one of the many chimneys by which the hidden fires of the Andes find vent. On the occasion I am speaking of, at least 10,000 square miles of country were estimated as

having been upheaved, and the upheaval was not confined to the land, but extended far away to sea, which was proved by the soundings off Valparaiso, and along the coast, having been found considerably shallower than they were before the shock.

Again, in the year 1819, in an earthquake in India, in the district of Cutch, bordering on the Indus, a tract of country more than fifty miles long and sixteen broad, was suddenly raised 10 feet above its former level. The raised portion still stands up above the unraised, like a long perpendicular wall, which is known by the name of the "Ullah Bund," or "God's Wall." And again, in 1538, in that convulsion which threw up the Monte Nuovo (New Mountain), a cone of ashes 450 feet high, in a single night, the whole coast of Pozzuoli, near Naples, was raised 20 feet above its former level, and remains so permanently upheaved to this day. And I could mention innumerable other instances of the same kind.*

This, then, is the manner in which the earthquake does its work; *and it is always at work.* Somewhere or other in the world, there is perhaps not a day, certainly not a month, without an earthquake. In those districts of South and Central America, where the great chain of volcanic cones is situated—Chimborazo, Cotopaxi, and a long list with names unmentionable, or at least unpronounceable—the inhabitants no more think of counting earthquake shocks than we do of counting showers of rain. Indeed, in some places along that coast, a shower is a greater rarity. Even in our own island, near Perth, a year seldom passes without a shock, happily, within the records of history, never powerful enough to do any mischief.

It is not everywhere that this process goes on by fits and starts. For instance, the northern gulfs, and borders of the Baltic Sea, are steadily shallowing, and the whole mass of Scandinavia, including Norway, Sweden, and Lapland, is rising out of the sea at the average rate of about two feet per century. But as this fact (which is perfectly well established by reference to ancient high and low water-marks) is not so evidently connected with the action of earthquakes, I shall not further refer to it just now. All that I want to show is, that there is a great cycle of changes going on, in which the earthquake and volcano act a very conspicuous part, *and that part a*

* Not that earthquakes always *raise* the soil; there are plenty of instances of subsidence, etc.

restorative and conservative one, in opposition to the steadily destructive and levelling action of the ocean waters.

COMPOSITION.—Give an account, in writing, of the effect of rivers in wearing away the surface of the earth, and of earthquakes in elevating it.

THE BRITISH NAVY IN 1741.—*Smollett.*

Tobias Smollett, an eminent novelist of last century, was born in Scotland, in 1721, and died near Leghorn, in 1771. His novels are, unhappily, disfigured by great coarseness, like all similar writings of his day. He was educated for a surgeon, and as such served on board a ship of the line at the bombardment of Carthagena, a Spanish city on the coast of the Caribbean Sea, in South America. The expedition miserably failed. Smollett describes it in one of his stories—"Roderick Random," from which this extract is taken.

THE change of the atmosphere, occasioned by this phenomenon, conspired, with the stench that surrounded us, the heat of the climate, our own constitutions, impoverished by bad provisions, and our despair, to introduce the bilious fever among us, which raged with such violence, that three-fourths of those whom it invaded died in a deplorable manner; the colour of their skin being, by the extreme putrefaction of the juices, changed into that of soot.

Our conductors, finding things in this situation, perceived it was high time to relinquish our conquests; and this we did, after having rendered their artillery useless, and blown up their walls with gunpowder. Just as we sailed from Bocca Chica, on our return to Jamaica, I found myself threatened with the symptoms of this dreadful distemper; and knowing very well that I stood no chance for my life, if I should be obliged to lie in the cockpit, which by this time was grown intolerable, even to people in health, by reason of the heat and unwholesome smell of decayed provision, I wrote a petition to the captain, representing my case, and humbly imploring his permission to lie among the soldiers in the middle deck, for the benefit of the air: but I might have spared myself the trouble; for this humane commander refused my request, and ordered me to continue in the place allotted for the surgeon's mates, or else be contented to lie in the hospital, which, by the by, was three degrees more offensive and more suffocating than our own berth below. Another, in my condition, perhaps, would have submitted to his fate, and died in a pet; but I could not brook

the thought of perishing so pitifully, after I had weathered so many gales of hard fortune: I therefore, without minding Oakum's injunction, prevailed upon the soldiers (whose good-will I had acquired) to admit my hammock among them; and actually congratulated myself upon my comfortable situation: which Crampley no sooner understood, than he signified to the captain my contempt of his orders, and was invested with power to turn me down again into my proper habitation.

This barbarous piece of revenge incensed me so much against the author, that I vowed, with bitter imprecations, to call him to a severe account, if ever it should be in my power; and the agitation of my spirits increased my fever to a violent degree. While I lay gasping for breath in this dreadful abode, I was visited by a sergeant, the bones of whose nose I had reduced and set to rights, after they had been demolished by a splinter during our last engagement; he, being informed of my condition, offered me the use of his berth in the middle deck, which was enclosed with canvas, and well-aired by a port-hole that remained open within it. I embraced this proposal with joy, and was immediately conducted to the place, where I was treated, while my illness lasted, with the utmost tenderness and care by this grateful halberdier, who had no other bed for himself than a hencoop during the whole passage. Here I lay and enjoyed the breeze, notwithstanding which my malady gained ground, and at length my life was despaired of, though I never lost hopes of recovery, even when I had the mortification to see, from my cabin-window, six or seven thrown overboard every day, who died of the same distemper. This confidence, I am persuaded, conduced a great deal to the preservation of my life, especially when joined to another resolution I took at the beginning, namely, to refuse all medicine, which I could not help thinking co-operated with the disease, and, instead of resisting putrefaction, promoted a total degeneracy of the vital fluid. When my friend Morgan, therefore, brought his diaphoretic boluses, I put them into my mouth, 'tis true, but without any intention of swallowing them: and, when he went away, spat them out, and washed my mouth with water-gruel. I seemingly complied in this matter, that I might not affront the blood of Caractacus, by a refusal which might have intimated a diffidence of his physical capacity, for he acted as my physician; Doctor Mackshane never once inquiring about me, or even knowing where I was. When my distemper was at the height, Morgan thought my

case desperate, and, after having applied a blister to the nape of my neck, squeezed my hand, bidding me, with a woful countenance, recommend myself to God; then, taking his leave, desired the chaplain to come and administer some spiritual consolation to me; but, before he arrived, I made shift to rid myself of the troublesome application the Welshman had bestowed on my back. The fever soon after grew outrageous. I began to see strange chimeras, and concluded myself upon the point of being delirious; in the meantime, being in great danger of suffocation, I started up in a kind of frantic fit, with an intention to plunge myself into the sea; and, as my friend the sergeant was not present, would certainly have cooled myself to some purpose, had I not perceived a moisture upon my thigh, as I endeavoured to get out of my hammock: the appearance of this revived my hopes, and I had reflection and resolution enough to take advantage of this favourable symptom, by tearing the shirt from my body, and the sheets from my bed, and wrapping myself in a thick blanket, in which enclosure, for about a quarter of an hour, I felt all the pains of purgatory: but it was not long before I was recompensed for my suffering by a profuse sweat, that, bursting from the whole surface of my skin, in less than two hours, relieved me from all my complaints except that of weakness, and left me as hungry as a kite.

Meanwhile our ship was ordered to be heaved down, victualled, and watered, for her return to England; and our captain, for some reason or other, not thinking it convenient for him to revisit his native country at this time, exchanged with a gentleman, who, on the other hand, wished for nothing so much as to be safe without the tropic: all his care and tenderness of himself being insufficient to preserve his complexion from the injuries of the sun and weather.

Our tyrant having left the ship, and carried his favourite Mackshane along with him, to my inexpressible satisfaction, our new commander came on board in a ten-oared barge, overshadowed with a vast umbrella, and appeared in everything the reverse of Oakum, being a tall, thin, young man, dressed in this manner: a white hat, garnished with a red feather, adorned his head, from whence his hair flowed upon his shoulders, in ringlets tied behind with a ribbon. His coat consisted of pink-coloured silk, lined with white, by the elegance of the cut retired backward, as it were, to discover a white satin waistcoat embroidered with gold, unbuttoned at the upper part to

display a brooch set with garnets, that glittered in the breast of his shirt, which was of the finest cambric, edged with right Mechlin: the knees of his crimson velvet breeches scarce descended so low as to meet his silk stockings, which rose without spot or wrinkle on his meagre legs, from shoes of blue Meroquin, studded with diamond buckles that flamed forth rivals to the sun! A steel-hilted sword, inlaid with gold, and decked with a knot of ribbon which fell down in a rich tassel, equipped his side; and an amber-headed cane hung dangling from his wrist. But the most remarkable parts of his furniture were, a mask on his face, and white gloves on his hands, which did not seem to be put on with an intention to be pulled off occasionally, but were fixed with a curious ring on the little finger of each hand.

NOTES. — *Change of Atmosphere.*—The wet season had begun, with constant rain, thunder, and lightning. *Bocca Chica.* —The fort at the mouth of the river on which Carthagena stands.

DIALOGUE BETWEEN WOLSEY AND CROMWELL.

Shakspere.

Wolsey.—So farewell to the little good you bear me.
Farewell! a long farewell, to all my greatness!
This is the state of man: To-day he puts forth
The tender leaves of hopes; to-morrow blossoms,
And bears his blushing honours thick upon him:
The third day comes a frost, a killing frost;
And,—when he thinks, good easy man, full surely
His greatness is a-ripening,—nips his root,
And then he falls, as I do. I have ventur'd,
Like little wanton boys that swim on bladders,
This many summers in a sea of glory;
But far beyond my depth: my high-blown pride
At length broke under me; and now has left me,
Weary, and old with service, to the mercy
Of a rude stream, that must for ever hide me.
Vain pomp and glory of this world, I hate ye;
I feel my heart new-open'd. O, how wretched
Is that poor man that hangs on princes' favours!
There is, betwixt that smile we would aspire to,
That sweet aspect of princes, and their ruin,
More pangs and fears than wars or women have;

And, when he falls, he falls like Lucifer,
Never to hope again.—

Enter Cromwell, and stands amazed.

Why, how now, Cromwell?
Crom.—I have no power to speak, sir.
Wol.—What, amaz'd
At my misfortunes? can thy spirit wonder
A great man should decline? Nay, an you weep,
I am fallen indeed.
Crom.—How does your Grace?
Wol.—Why, well;
Never so truly happy, my good Cromwell.
I know myself now, and I feel within me
A peace above all earthly dignities,
A still and quiet conscience. The king has cur'd me,
I humbly thank his grace; and from these shoulders,
These ruin'd pillars, out of pity, taken
A load would sink a navy,—too much honour:
O, 'tis a burden, Cromwell, 'tis a burden
Too heavy for a man that hopes for heaven.
Crom.—I am glad your Grace has made that right use of it.
Wol.—I hope I have: I'm able now, methinks,
(Out of a fortitude of soul I feel,)
To endure more miseries and greater far,
Than my weak-hearted enemies dare offer.—
What news abroad?
Crom.—The heaviest, and the worst,
Is your displeasure with the King.
Wol.—God bless him!
Crom.—The next is, that Sir Thomas More is chosen
Lord chancellor in your place.
Wol.—That's somewhat sudden:—
But he's a learned man. May he continue
Long in his highness' favour, and do justice
For truth's sake, and his conscience; that his bones,
When he has run his course, and sleeps in blessings,
May have a tomb of orphans' tears wept on 'em!
What more?
Crom.—That Cranmer is return'd with welcome,
Install'd lord archbishop of Canterbury.
Wol.—That's news indeed!
Crom.—Last, that the lady Anne,
Whom the king hath in secrecy long married,

This day was view'd in open as his queen,
Going to chapel; and the voice is now
Only about her coronation.
Wol.—There was the weight that pull'd me down. O Cromwell,
The King has gone beyond me; all my glories
In that one woman I have lost for ever:
No sun shall ever usher forth mine honours,
Or gild again the noble troops that waited
Upon my smiles. Go, get thee from me, Cromwell,
I am a poor fallen man, unworthy now
To be thy lord and master: Seek the king;
That sun, I pray, may never set! I have told him
What, and how true thou art: he will advance thee;
Some little memory of me will stir him,
(I know his noble nature,) not to let
Thy hopeful service perish too: Good Cromwell,
Neglect him not; make use now, and provide
For thine own future safety.
Crom.—O my lord,
Must I then leave you? must I needs forego
So good, so noble, and so true a master?
Bear witness, all that have not hearts of iron,
With what a sorrow Cromwell leaves his lord.—
The king shall have my service; but my prayers
For ever, and for ever, shall be yours.
Wol.—Cromwell, I did not think to shed a tear
In all my miseries; but thou hast forced me,
Out of thy honest truth, to play the woman.
Let's dry our eyes: and thus far hear me, Cromwell;
And,—when I am forgotten, as I shall be;
And sleep in dull cold marble, where no mention
Of me more must be heard of,—say I taught thee;
Say, Wolsey,—that once trod the ways of glory,
And sounded all the depths and shoals of honour,—
Found thee a way, out of his wreck, to rise in;
A sure and safe one, though thy master miss'd it.
Mark but my fall, and that that ruin'd me.
Cromwell, I charge thee, fling away ambition;
By that sin fell the angels; how can man, then,
The image of his Maker, hope to win by 't?
Love thyself last: cherish those hearts that hate thee;
Corruption wins not more than honesty.
Still in thy right hand carry gentle peace,
To silence envious tongues. Be just, and fear not:

Let all the ends thou aim'st at be thy country's,
Thy God's, and truth's; then, if thou fall'st, O Cromwell,
Thou fall'st a blessed martyr! Serve the King;
And—prithee, lead me in:
There, take an inventory of all I have,
To the last penny; 'tis the king's: my robe,
And my integrity to heaven, is all
I dare now call mine own. O Cromwell, Cromwell!
Had I but serv'd my God with half the zeal
I serv'd my king, he would not in mine age
Have left me naked to mine enemies.

NOTES.—Wolsey was dismissed from power Oct. 17, 1529. He had ruled England with a haughty despotic sceptre, as the great minister of Henry VIII., for fifteen years—from 1515. He was as unprincipled as he was able, and it is to his training, in great part, that the gradual debasement of Henry's nature may justly be traced. His disgrace was immediately due to the discovery of a secret letter he had sent to the Pope, directly opposite in tenor to the despatches submitted to the king and approved of by him. His whole life was a gambler's throw for the highest prize—the Papacy. For this he played with king and country in turn, and, when detected, naturally fell. *Old with Service.*—He was now fifty-nine years old, and had been in the service of the king and of his father, Henry VII., since 1506, at latest. *Their ruin.*—The ruin princes inflict. *Lucifer.*—"How art thou fallen from heaven, O Lucifer, Son of the Morning." Isaiah, xiv. 12. *Cromwell, Thomas.*—Afterwards Earl of Essex. Said to have been the son of a blacksmith, at Putney, and of an alewife. He had been much abroad, and had served as a soldier in the Italian wars. He was afterwards Wolsey's secretary, and remained true to him when all besides forsook him. He became a strong friend of the Protestant party, but it seems as if, notwithstanding this, he had had a hand in the conspiracy by which Anne Boleyn was murdered. He himself was finally beheaded, in 1540. *Sir Thomas More.*—A man of fine genius and fine character, when bigotry did not pervert his better nature. He sided with the king about his divorce from Catherine, but he refused to acknowledge his supremacy as head of the Church, and was beheaded by the brutal Henry, in 1535. He was a bitter persecutor of the Protestants. *Cranmer, Thomas.*—Born, 1489. In 1528, when a doctor at Cambridge, he was chosen by the king on business connected with the king's divorce, and finally, when Warham died, in 1532, was made Archbishop of Canterbury. He was a kindly timid man, striving to do right, but often driven to compromise, by his terrible position amidst busy enemies and under a lawless despot. He was burned, in Mary's reign, in 1555. *Lady Anne.*—Queen Anne Boleyn was married, Jan. 25, 1533, to Henry VIII. She was a woman of fine intellectual gifts, of boundless charity, and of the clearest womanly purity; but Henry tired of her when she had had a daughter and two dead sons, and having fancied Jane Seymour, who was much better looking, made up a plot against the poor lady, and beheaded her, in 1536. The next day he married Jane Seymour. Wolsey was right in regarding Anne as his enemy. He had, in her earlier life, treated her with the most heartless cruelty and wickedness, and she doubtless felt it. But Anne was only one of many whom the cardinal had made enemies. All the nobility were against him, and the very people had come to long for his disgrace. *My integrity to Heaven.*—Wolsey, after his fall, was allowed to remain for a time at one of his seats, near London, but was, ere long, sent off to York, through the influence of the Duke of Norfolk, who feared he might win back the favour of Henry, if near him. At York, of which he was archbishop, his life was that of a penitent and humbled man, who seemed only anxious to do the duties of his diocese faithfully. He had been bowed down till he was as humble as before he had been haughty. His enemies could not, however, rest while he was alive, and got an order from Henry for his arrest on a charge of high treason; but he died at Leicester, on his way to the Tower, Nov. 29, 1530. It is only a poet's anachronism, therefore, that makes him hear of Cranmer's promotion to Canterbury in 1532.

THE TRUE LAWS OF BUSINESS LIFE.—*John Ruskin.*

Supposing half a dozen or a dozen men were cast ashore from a wreck on an uninhabited island, and left to their own resources, one of course, according to his capacity, would be set to one business and one to another; the strongest to dig and to cut wood, and to build huts for the rest: the most dexterous to make shoes out of bark and coats out of skins; the best educated to look for iron or lead in the rocks, and to plan the channels for the irrigation of the fields. But though their labours were thus naturally severed, that small group of shipwrecked men would understand well enough that the speediest progress was to be made by helping each other,—not by opposing each other: and they would know that this help could only be properly given so long as they were frank and open in their relations, and the difficulties which each lay under properly explained to the rest. So that any appearance of secrecy or separateness in the actions of any of them would instantly, and justly, be looked upon with suspicion by the rest, as the sign of some selfish or foolish proceeding on the part of the individual.

If, for instance, the scientific man were found to have gone out at night, unknown to the rest, to alter the sluices, the others would think, and in all probability rightly think, that he wanted to get the best supply of water to his own field; and if the shoemaker refused to show them where the bark grew which he made the sandals of, they would naturally think, and in all probability rightly think, that he didn't want them to see how much there was of it, and that he meant to ask from them more corn and potatoes in exchange for his sandals than the trouble of making them deserved. And thus, although each man would have a portion of time to himself, in which he was allowed to do what he chose without let or inquiry,—so long as he was working in that particular business which he had undertaken for the common benefit, any secrecy on his part would be immediately supposed to mean mischief; and would be required to be accounted for, or put an end to: and this all the more because, whatever the work might be, certainly there would be difficulties about it which, when once they were well explained, might be more or less done away with by the help of the rest; so that assuredly every one of them would advance with his labour not only

more happily, but more profitably and quickly, by having no secrets, and by frankly bestowing, and frankly receiving, such help as lay in his way to get or to give.

And, just as the best and richest result of wealth and happiness to the whole of them, would follow on their perseverance in such a system of frank communication and of helpful labour; —so precisely the worst and poorest result would be obtained by a system of secrecy and of enmity; and each man's happiness and wealth would assuredly be diminished in proportion to the degree in which jealousy and concealment became their social and economical principles. It would not, in the long run, bring good, but only evil, to the man of science, if, instead of telling openly where he had found good iron, he carefully concealed every new bed of it, that he might ask, in exchange for the rare ploughshare, more corn from the farmer, or in exchange for the rude needle, more labour from the sempstress: and it would not ultimately bring good, but only evil, to the farmers, if they sought to burn each other's cornstacks, that they might raise the value of their grain, or if the sempstresses tried to break each other's needles, that each might get all the stitching to herself.

Now, these laws of human action are precisely as authoritative in their application to the conduct of a million of men, as to that of six or twelve. All enmity, jealousy, opposition, and secrecy are wholly, and in all circumstances, destructive in their nature—not productive; and all kindness, fellowship, and communicativeness are invariably productive in their operation, —not destructive; and the evil principles of opposition and exclusiveness are not rendered less fatal, but more fatal, by their acceptance among large masses of men; more fatal, I say, exactly in proportion as their influence is more secret. For though the opposition does always its own simple, necessary, direct quantity of harm, and withdraws always its own simple, necessary, measurable quantity of wealth from the sum possessed by the community, yet, in proportion to the size of the community, it does another and more refined mischief than this, by concealing its own fatality under aspects of mercantile complication and expediency, and giving rise to multitudes of false theories based on a mean belief in narrow and immediate appearances of good done here and there by things which have the universal and everlasting nature of evil. So that the time and powers of the nation are wasted, not only in wretched struggling against each other, but in vain complaints, and

groundless discouragements, and empty investigations, and useless experiments in laws, and elections, and inventions; with hopes always to pull wisdom through some new-shaped slit in a ballot-box, and to drag prosperity down out of the clouds along some new knot of electric wire; while all the while Wisdom stands calling at the corners of the streets, and the blessing of heaven waits ready to rain down upon us, deeper than the rivers and broader than the dew, if only we will obey the first plain principles of humanity, and the first plain precepts of the skies: "Execute true judgment, and show mercy and compassion, every man to his brother; and let none of you imagine evil against his brother in your heart."

COMPOSITION.—Write an abstract of this lesson.

YOUTH AND AGE.—*Coleridge.*

Samuel Taylor Coleridge, a fine poet, an exquisite prose writer, and a profound thinker, was born in 1772; he died in 1834.

YOUTH, a breeze 'mid blossoms straying,
Where Hope clung feeding, like a bee—
Both were mine! Life went a Maying,
With Nature, Hope, and Poesy,
When I was young!
When I was young —Ah, woful When!
Ah! for the change 'twixt Now and Then!
This breathing house not built with hands,
This body that does me grievous wrong,
O'er aery cliffs and glittering sands,
How lightly then it flashed along:—
Like those trim skiffs, unknown of yore,
On winding lakes and rivers wide,
That ask no aid of sail or oar,
That fear no spite of wind or tide!
Nought cared this body for wind or weather,
When Youth and I liv'd in 't together.

Flowers are lovely; Love is flower-like;
Friendship is a sheltering tree;
O! the joys, that came down shower-like,
Of Friendship, Love, and Liberty,
Ere I was old!
Ere I was old? Ah, woful Ere,
Which tells me, Youth's no longer here!

O Youth! for years so many and sweet,
'Tis known that Thou and I were one,
I'll think it but a fond conceit—
It cannot be, that Thou art gone!
Thy vesper-bell hath not yet toll'd;
And thou wert aye a masker bold!
What strange disguise hast now put on,
To make believe, that Thou art gone?
I see these locks in silvery slips,
This drooping gait, this altered size:
But springtide blossoms on thy lips,
And tears take sunshine from thine eyes!
Life is but thought: so think I will
That Youth and I are housemates still.

Dewdrops are the gems of morning,
But the tears of mournful eve!
Where no hope is, life's a warning,
That only serves to make us grieve,
When we are old:
That only serves to make us grieve
With oft and tedious taking-leave,
Like some poor nigh-related guest,
That may not rudely be dismist.
Yet hath outstay'd his welcome while,
And tells the jest without the smile.

LINES FROM WORDSWORTH.

SMALL service is true service while it lasts:
Of humblest Friends, bright Creature! scorn not one:
The Daisy, by the shadow that it casts,
Protects the lingering dew-drop from the Sun.

The primal duties shine aloft, like stars;
The charities that soothe, and heal, and bless,
Are scattered at the feet of Man, like flowers.

LESSONS ON SPECIFIC SUBJECTS.

PHYSICS—ELECTRICITY.

1. In the "Fifth Reader," p. 136, the elementary phenomena of attraction and repulsion by electricity are described. The substance attracted or repelled, if suspended so that the effect on it may be seen and measured, is called an electroscope, from the Greek words, *electron*, electricity, and *skopeo*, to observe, to see. A fine cotton or linen thread hung from an arm or support, with a little light ball of cotton wool, or of elder pith, at the end of it (Fig. 44), forms a delicate and sensitive electroscope.

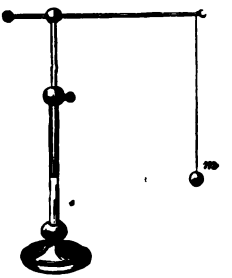


Fig. 44.

2. A very delicate test of electrical excitement is a slip of leaf gold under a bell-glass, so as to shield it from currents of air. It is called the **Gold-Leaf Electroscope.** Where two leaves of gold are used, as described in "Fifth Reader," p. 138, § 7 (Fig. 45), the kind and force of the electricity in operation in any case is very easily observed.

Fig. 45.

R R, a glass receiver; *a b*, two strips of gold leaf; *p*, conducting rod; *x y*, the lines towards which the gold leaves diverge. If the electricity of the substance to be tested is different from that with which the ball *p* has been charged, the leaves close; if it be the same, they fly open.

3. Substances which, like amber, display electric force when rubbed, are called *idio-electrics*, or substances naturally electric in themselves. They include gums of all kinds, camphor, gum-lac, shell-lac, gutta-percha, amber, jet, sulphur, precious stones, glass, silk, furs, wool, hair, feathers, sealing-wax, &c.

4. Other substances have the property of conducting or transmitting electricity, and are hence distinguished from the idio-electrics by the name of conductors. The electricity is not retained in them as it is in amber, but passes through them. This class includes all the metals, charcoal, water in all its forms, flame and smoke, nearly all earths and stones, &c.

5. In order to retain electricity in any conducting body, it is requisite to support it on some non-conductor, as, for example, on a glass stalk. We see this in the glass "isolators" on the telegraph posts, round which the telegraph wire is passed. A conductor of electricity thus treated is said to be *insulated*, and is called an *insulated conductor*. When electrified it is said to be charged.

Fig. 46 explains this. *u* is a thin disc of metal *insulated* on a long

slender rod of varnished glass. P is a conductor insulated by a glass stalk, and *charged*. M is a similar *insulated conductor* not *charged*. By touching P with *u* and then touching M with it we are able to bear off a great portion of the electricity of the charged body P, and deposit it on M so as to *charge* it. Repeated contacts or transfers are, however, needed before this is accomplished, as the disc transfers only a little each time. The disc or sphere of metal employed is called a *carrier*.

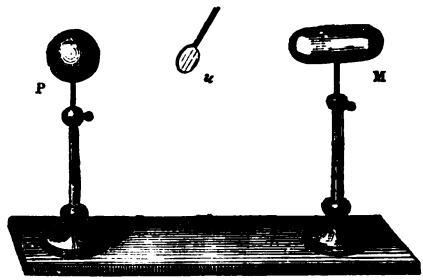


Fig. 46.

6. The phenomena of attraction and repulsion of bodies by electricity, are described in §§ 3, 4 and 5, pp. 136-7, "Fifth Reader," and do not require repetition. The illustrations will recall them to your memory.

In Fig. 47 the two rods in the two hands are of glass, about 3 feet long

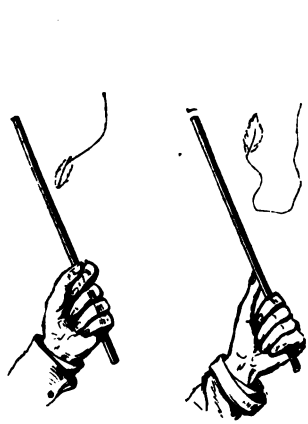


Fig. 47.

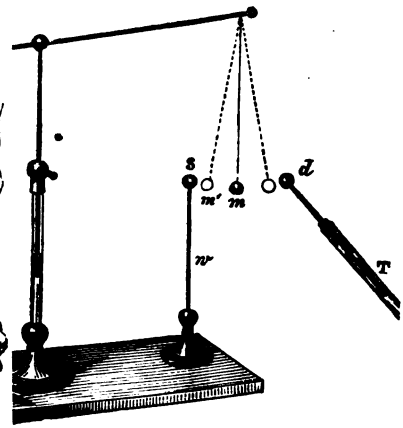


Fig 48.

and an inch in diameter. The objects in the air near them are two feathers, suspended by a light thread from the ceiling. If the rod, being perfectly dry and clean, be rubbed briskly with a warm silk handkerchief, it will soon be excited, and on holding it within a few feet of the feather the feather will fly towards it and adhere to it. On withdrawing the

rod, however, and again bringing it near the feather it will no longer attract but will repel it. How this comes about is stated in the "Fifth Reader," to which I must refer you.

In the other illustration (Fig. 48) *m* is a pith ball, insulated by being hung at the end of a thread of unspun silk. It thus forms an *insulated electroscope*. T is a glass tube furnished with a metal conducting rod and ball, previously electrified by friction. When the metal ball *d* is brought near the pith ball *m* it will immediately attract it towards itself, as in the cut, but, if it be allowed to touch the metal ball, *m* will instantly rebound to *m'*, and will not again come near *d* until touched by the finger or other freely conducting substance which makes it once more non-electrified.

If a metal ball, on a rod of metal, so as to form a conductor, be substituted for the finger, the pith ball will swing first towards the excited glass rod, then, after touching the conductor, will fly back to the glass rod, and this will be repeated according to the amount of electricity in operation.

Other details will be found in the "Fifth Reader."

7. Another class of phenomena connected with electricity is known by the name of INDUCTION. It is that property by which bodies duly excited develope powers similar to their own on other bodies, without coming in contact with them, by some electrical emanation or sympathetic action, operating between the two bodies even at considerable distances.

If some conductor, Q (Fig. 49), such as a light hollow cylinder of gilded wood, about 5 inches in length, and from 3 to 4 inches in diameter, duly insulated, on glass, &c., be put directly in a line with another similar insulated conductor, P, charged either positively or negatively — say positively* — the two will forthwith exhibit a sympathetic action, which will change their electrical state. Q, which has not been charged, will show a state of excitement, without any contact with P, which has been charged, and will

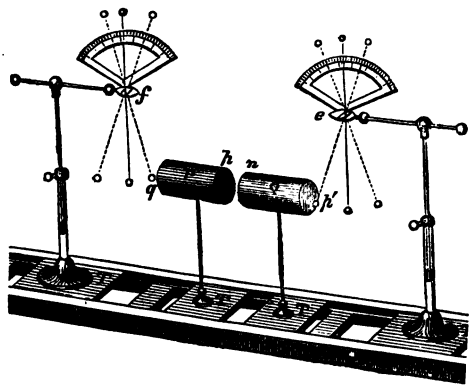


Fig. 49.

* See "Fifth Reader," p. 138, ¶ 6.

attract the pith ball of the electroscope *e*, placed at *p'*, at the one end of Q, towards Q. On the other hand, a similar pith ball on the electroscope *f* will first be *repelled* from the far end of P, and will then fall back towards P, in a greater or less degree, showing a lessening of the repellent force of P at the end opposite Q. The changes effected are peculiar. The face *n* of Q, *next* the charged body P, acquires an *opposite* electricity to that of P, whilst its *far away* face *p'* acquires the *same* electricity as P has. Thus, if P be charged with *positive*, or vitreous electricity, the face *n* of Q will be *negative*, and the face *p'*, be *positive*. Still further, Q reflects an influence again on P, which *increases* the force of P at its face *p* directly opposite the face *n* of Q, and *lessens* it at its face *q*, which is at the farther end from the face *n*. Thus *p'* is positive, *n*, negative, *p* is positive again, and *q* less positive.

8. ELECTRICAL MACHINES, to produce and accumulate positive and negative electricity in great quantity, and by an easy means, date back to the beginning of the seventeenth century. They were very simple at first, but have gradually become more and more perfect and complicated.

There are two kinds, the *cylindrical* and the *plate* machines, the *electric* to be excited being a hollow cylinder of glass in the one, and a glass plate in the other.

9. The cylindrical machine is represented in Fig 50. In this illustration A, *m*, B is a hollow glass cylinder. It is blown with a short open projecting neck, A B, at each end, and these open necks are closed air-tight with fine cork, the air within the cylinder being previously made perfectly dry, and the glass within freed from all moisture. The necks are covered with neat brass caps, or caps of varnished mahogany, cemented over them.

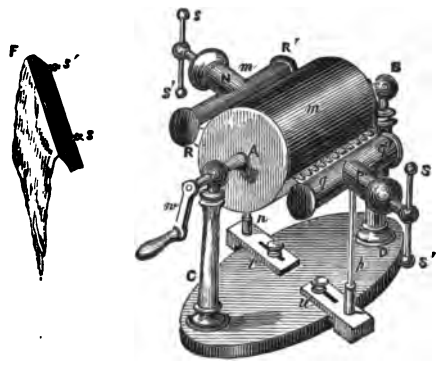


Fig. 50.

The caps have short axles, or axes, A B, of hard wood, which are fitted on two mahogany or glass pillars, C D, and the cylinder is made to turn round on them by a winch, *w*, or a wheel and band, against a fixed *rubber* or pad, R R'. This *rubber*, with its rubbing cushion, is made to press against the cylinder by an insulated conductor, N, termed the *negative* conductor, insulated on the glass pillar, N *n*. The rubber has a flap of oiled

silk, *m*, attached to it and lying over a third of the circumference of the cylinder. The silk is oiled on one side only, and has a rough side towards the glass.

The positive electricity generated by the friction of the cylinder against the rubber and the silk is received upon a row of metallic points, *q q'*. These are connected with an insular conductor, P, which has a projection ending in a brass ball through which passes a sliding rod, *s s'*. On the opposite side is a similar conductor, N.

When the cylinder is made to revolve freely, the conductor N being connected with the ground, a surprising stream of *positive* electricity may be obtained by the friction against the cushion and silk flap, from the conductor P, in a current of bright sparks. If the conductor P be connected with the ground, and the cushion insulated, *negative* electricity is obtained as freely from the conductor N.

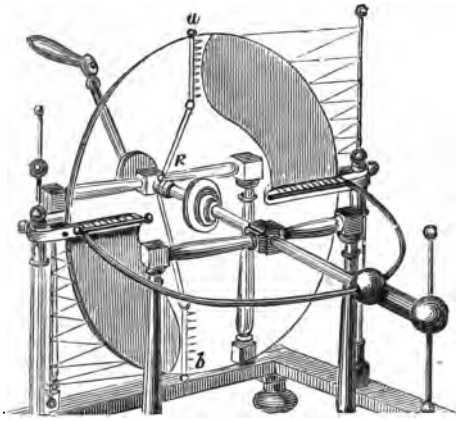


Fig. 51.

10. The plate machine is the same in principle, so that it is not necessary to occupy space by explanations of the letters on the illustration (Fig. 51). The details may be readily understood by comparison with the cylindrical machine.

The Leyden Jar.

1. Electricity which is thus produced by the electric machine is accumulated by means of the jar which gets its name, the Leyden Jar, from the Dutch town in which its properties were first discovered.

2. The principle of this valuable instrument will be understood from (Fig. 52), which represents a pane of glass, A B, with a square of tinfoil on each side *c d e f*, in the centre, the glass being left bare between the tinfoil and the edges of the pane. This plate being supported on a stand made of some good conductor, such as metal, we have two conducting surfaces of tinfoil, the upper one insulated by the pane of glass; the lower communicating by the metal stand with the earth. If a charge of electricity be communicated to the insulated surface, *c d*,

an equal charge of electricity of the opposite kind will immediately be produced on the opposite conducting surface *e f*—that is on the under coating of tinfoil. The upper surface, or insulated conductor, *c d*,

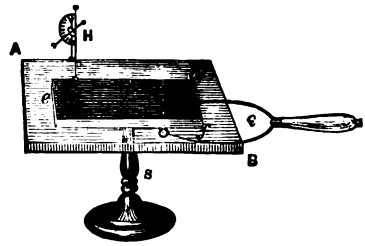


Fig. 52.

will be positive; the under surface, *e f*, which is not insulated, will be negative. The ball of an electrometer will be repelled by the uncondensed electricity on the charged plate.

3. These two opposite electricities, thus kept apart by the glass, have so great a tendency to come together, so as to produce the neutral state, or state of equilibrium, that in many cases the glass is fractured by it. But if a discharging rod be brought into contact with the two opposite coatings, the two electricities at once unite, emitting a brilliant spark and causing an explosion as they do so. Indeed, so strong is the tendency to come together that this effect is produced if one ball of the discharging rod, usually the negative, first touch the negative coating, while the other only comes *near* the positive coating.

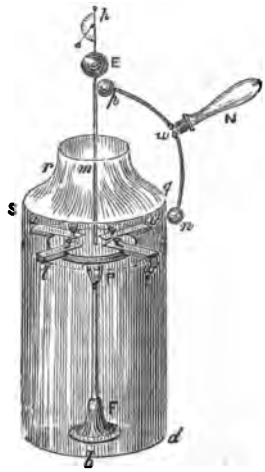


Fig. 53.

4. The Leyden Jar (Fig. 53) is an application of this principle. Let me describe it from the illustration.

m b is a jar of clear glass, of almost any size or shape. Its diameter, *a d* should be about half its height, narrowing from the shoulder, S, to about half as broad at its mouth, *m*. The jar is coated outside and within with tinfoil for the shoulder, S. The neck, *r q*, which separates the two metal coatings, is varnished with a solution of shell-lac dissolved in naphtha.

5. Electricity is communicated to the jar from the electric machine by a light metallic tube, E, called the *charging rod*, which passes through its

mouth and fits into a second metal rod, P, which is glued to the bottom of the jar by a wooden foot, through which the metal comes so as to touch the tinfoil below. The wooden foot itself is covered with tinfoil. To steady this lower half of the charging rod at the top, a similar piece of wood, with four light cross-arms, *t u v w*, all covered with foil, is made to touch the inner coating. *p* above the charging rod is an electrometer, to mark the progressive charging of the jar. The mouth of the jar is closed by a piece of wood, through which the charging rod passes.

6. If the knob E be held to the conductor of an electric machine, while its plate or cylinder is being turned, sparks will fly off to the knob, and pass down the charging rod and communicate to the inner surface of the jar a charge of electricity, while the outside of the jar will receive an equal charge of electricity of the opposite kind. The jar is now said to be charged. If now a discharging rod, N, be brought in contact with the outer surface *n*, and be brought near the knob E, a flash of light, accompanied by a crackling noise or explosion, will be given forth, even before the discharging rod actually touches both surfaces. If, on the other hand, you hold the jar on the outside with one hand, and bring the knuckles of the other near the knob, along with the spark and the explosion you will receive a *shock* as the two electricities flash through your body to unite with each other.

7. A number of such jars, placed so that all the outside coatings are connected by good conductors, and all the inside coatings are similarly connected, forms what is called an ELECTRIC BATTERY (Fig. 54). Large quantities of electricity can thus be collected, and effects almost like those of lightning itself can be produced. By means of a large battery at Haarlem, Van Marum rent in fragments a piece of boxwood four inches square, and melted various metals. An iron wire 25 feet long, and about $\frac{1}{120}$th of an inch in diameter, fell, under the shock, into red-hot balls, dispersing in all directions. A piece of tin wire, 8 inches long, and $\frac{1}{18}$th of an inch through, disappeared in a cloud of blue smoke, throwing down red-hot globules of tin, which rebounded from a piece of paper placed beneath. The report attending these experiments was so loud as to stun the ears, and the flash so bright as to dazzle the sight. When the discharge was passed through small animals it deprived them of life.

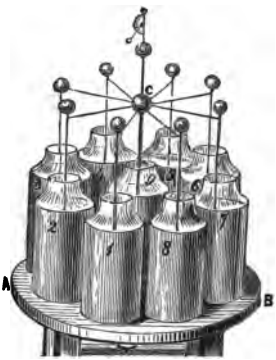


Fig. 54.

8. An instrument called the **electrophorus**, or *electricity-bearer* or *carrier*, will help to explain the principles of these phenomena. Let a disc

of coarse sealing-wax, N, be insulated on a glass support, S (Fig. 55), its upper surface having been excited to an electric condition by friction. Take now a plate, P, which may be of wood covered with tinfoil, having an insulating handle, *m*, and lay it on the sealing-wax, N. The excited electricity does not leave the surface of the sealing-wax to accumulate on the metal cover, but acts by simple induction (§ 7, p. 189). The negative electricity of the excited plate does not leave it, but determines, or brings, the positive electricity of the cover upon the negatively-excited surface of the sealing-wax, leaving the cover negatively electrified. If now we present a conducting-ball or the knuckle of the hand to the cover, positive electricity will be given off to it *from* the knuckle under the form of an electric spark, the opposite electrical forces will combine, and the cover will be again rendered apparently neutral. Let the cover be now raised from off the excited plate by its insulating handle: it then bears off or carries away the positive spark just communicated to it, which has satisfied its previously negative state, and it will now appear positively charged, and will return to the knuckle or a conducting-ball the very spark it had previously received, and, again, render the cover neutral. By repeating this process of successive contacts of the excited plate and its cover, and the subsequent withdrawal of the cover, we may bear off and obtain a series of electric sparks to a large amount, without any fresh exciting of the plate of sealing-wax.

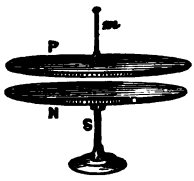


Fig. 55.

Thunder and Lightning.

1. These experiments and the phenomena they exhibit will now help us to understand how THUNDER and LIGHTNING are produced.

One kind of electricity, as you have seen, cannot be produced without the production of the other kind also. By rubbing a glass tube with a silk handkerchief, the glass is made positive and the handkerchief negative; a stick of sealing-wax is made negative by flannel when you rub it with it, and the flannel becomes positive, and the square of glass which I described to you, with tinfoil on each side, becomes in the same way positively electrified on the one side and negatively on the other.

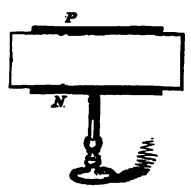


Fig. 56.

2. In these cases the two opposite electricities are developed very close to each other; in that of the glass plate, for instance, with only the thickness of the pane between them. If, however, we suppose the thickness of the glass very much increased, with the tinfoil on part of its upper and under sides as before (Fig. 56), the upper

metallic surface, *P*, will be insulated by a block, say several feet thick, while the lower metallic side communicates with the earth by its metal support. If *P* be charged with positive electricity there will immediately be negative electricity at *N*. Suppose now that *P* were a mass of clouds, as in Fig. 57, and *N* a part of the surface of the earth immediately under them, and that the air is the insulating body instead of the glass. The

Fig. 57.

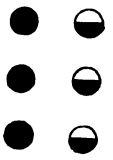


Fig. 58.

clouds, when they become electrical, throw the part of the earth's surface below them into an opposite state, by the agency of the air. It seems to come about somewhat in this way. Let the dark circles in the cut (Fig. 58) represent particles of the air in a neutral state—that is, with the natural share of electricity belonging to each particle diffused equally through it. If one of these particles become electrified, it appears as if all the electricity of the one kind is accumulated in the upper half of the particle (the white half), and all the electricity of the other kind in the lower (the black part). If now the cloud, *P* (Fig. 59), be positive, the upper half of the particles of air next it will be thrown into a negative state, and their lower half into a positive state. This lower half, acting, further, on the particles immediately below it, will make their upper half negative and their lower half positive, and so down towards the earth, which will be, in the supposed case, like the upper half of the chain of drops—negative. All this happening over very many square acres of earth, air, and cloud, must excite a vast amount of electricity; and as the two kinds of it thus widely diffused tend strongly to unite, the countless particles of air, the mass of clouds, and the surface of the earth, exert a very strong attraction

Fig. 59.

towards each other. This increases till at last the whole become overcharged, and the two electricities rush together with great force, the explosion in their doing so being a thunder-peal, and the flash, that of lightning. A thunder-storm is thus just a repetition, on a grand scale, in nature, of the crackle and spark of a Leyden jar, when the discharging-rod brings the outer and inner metal surfaces into contact. That phenomenon will help you to understand the greater wonders of the thunder and lightning.

GALVANIC ELECTRICITY.

1. I have hitherto spoken only of the electricity which is developed by *friction*, but electric currents are also produced by *chemical action*, and to these the name of galvanic electricity is given.

If you take two pieces of different metals, especially copper and zinc, and having put one above and the other under your tongue, let their outer edges touch, you will immediately feel a strange sensation in your tongue. This is galvanic electricity, developed by the acids of the mouth. Two similar plates—the zinc one having been rubbed over with mercury—if placed in a vessel containing water to which a little sulphuric acid has been added, and allowed to touch each other, at once begin to give off electric influence. Hydrogen gas rises in bubbles from the copper plate as long as the zinc touches it, and it will be found, on examination afterwards, that the zinc plate has lost weight while the copper remains unaffected. The dissolved zinc remains in the water as sulphate of zinc.

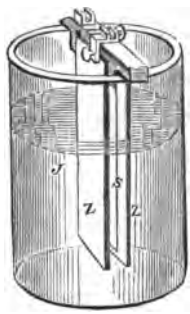


Fig. 60.

J, a jar containing a solution of diluted sulphuric acid. Z Z, two plates of zinc. *S*, a plate of platinum silvered over (instead of the copper).

2. If a copper wire be joined to each plate, and the other ends be connected, the same results follow though the plates themselves be placed apart in the vessel. The two wires, by their being connected, form, as it were, only one wire and thus join together the two plates. If now a magnetic needle be placed alongside the wire, with its poles in their proper position, it will be found that they will not continue so. The north end will no longer point to the magnetic north but to a point east or west of it. This disturbance, moreover, ceases as soon as the wires are separated. It is caused by the galvanic current passing through the wire.

3. A galvanic battery consists either of one *cell* or of a number—a *cell* being a vessel in which a single pair of metal plates is employed, Fig. 60. Many subordinate variations have been introduced into the construction of batteries, but as the principle of all is the same, I need not trouble you with them. A battery of a single cell is not strong enough for many

purposes, and hence a number of cells are in some cases connected, forming a battery of such and such a number of cells. Here is one of ten cells (Fig. 61).

4. The formation of the galvanic current may be explained very much as the transmission of electricity through the air has already been. Any piece of metal partly dipped in a liquid has electricity developed on it, its upper part, above the liquid, being negative; its lower, in the liquid, positive. Zinc and tin show this best. From the surface of the metal the electricity is communicated to the fluid in which it is immersed, by reproducing the same opposite states on it which it itself exhibits. If, for example, a zinc plate be put into pure water, each atom of which is composed of an atom of oxygen and of hydrogen, these atoms seem to arrange themselves so as to alternate one with another from the zinc to the sides of the vessel, as in Fig. 62, which is meant to represent atoms of water, of course on a scale immensely larger than in nature. The part of the zinc immersed is positive, as we have seen. It therefore attracts to itself the negative atom oxygen—which is white in the illustration—and repels the black atom, which is hydrogen. In its turn the black one attracts the next white one, and so to the edge of the vessel.

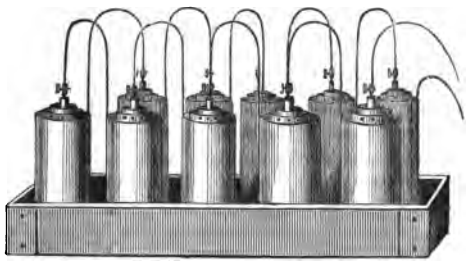


Fig. 61.

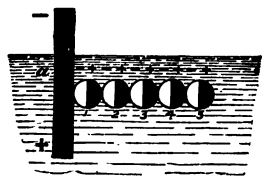


Fig. 62.

5. If a second plate of metal which excites electricity less powerfully than the zinc, be now introduced to the water, its tendency will be to affect the water in an opposite way to the other plate. But not being so powerful in its action as the zinc, the atoms retain nearly the position the zinc has given them. The black or negative sides all face the copper, and induce a negative state in the part of the plate which is immersed, the upper part being made positive.

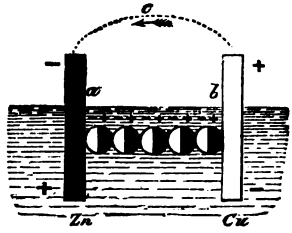


Fig. 63.

+ means *positive*. — means negative. *c*, the direction of the current, *Zn*, the zinc plate. *Cu*, the copper plate. *a b*, the parts of the two plates above the water.

Thus (Fig. 63) the electric current has a communication made for it from the one metal to the other, and wires from each, if joined at their farther ends, will make an electric circuit.

It is to this galvanic current we owe, among many other applications, that wonderful invention, the electric telegraph.

ACTION OF A CURRENT ON A MAGNET.

1. In 1825, Mr. Sturgeon of London discovered that when a soft iron bar is surrounded by a coil of wire through which a galvanic current is passing, the iron becomes a magnet; losing its power, however, the moment the current is made to cease. A bent bar which he made, Fig. 64, acquired a wonderful magnetic power in this way. It consisted of pieces of soft iron bent into the form of a horseshoe, with well-insulated copper wire wound round the two ends of it. When this wire was wound in the same direction round both ends it was found that the one end became a north and the other a south pole. If the quantity of wire were increased, the magnetism was increased in proportion. Some magnets, thus made, have carried nearly a ton weight. The iron in the horseshoe, in such huge magnets, was over three inches in diameter, and each leg was over a foot in length, while the copper wire was in coils of a number of turns in depth.

Fig. 64.

2. What electricity is no one can tell, but scientific research has learned to regard it as only a modification of the same principles as, in other forms, are called heat and magnetism. You have just seen how electricity can be converted into magnetism. So, heat and magnetism can be converted into electricity, and electricity into heat. Thus these sciences are not radically distinct, but are only the same force manifested under different forms. Electricity was formerly supposed to be a fluid substance altogether distinct from the body in which it manifested itself, but the grounds for believing this are fast disappearing, and it is now generally believed to be a condition or motion of the molecules or atoms of the electrified body itself. The same explanation is also accepted for the phenomena of other sciences. Heat is now proved not to be a substance, but a particular mode of motion of the atoms of the heated body. The same is proved to be the case in regard to Light. Magnetism is believed to be nothing more than some other, different, mode of motion of the atoms of magnetised bodies, and the wonderful changes of Chemistry, are only various movements and recombinations of particles so small as to be individually invisible.

REMINISCENCES OF POETS.—*Sir Henry Holland.*

An English physician and author: born, 1788; died, 1873.

WORDSWORTH, with whom I was much more intimate both at my own house and in his cottage at Rydal, also talked diffusely; but in a different vein of thought and phraseology. The latter part of his life was cheered by a redundance of that admiration which before had been confined to a few, and which he certainly did not undervalue. The phrase which Quintilian applies to Ovid, "*nimium amator ingenii sui*," * had its close application to Wordsworth. He frequently and fondly referred to his own poems, as if feeling that they had opened a new poetical era to the world. This to a certain extent was the truth. His fame had been clouded over for a time by the satire of the *Edinburgh Review*, the supreme leader, at that period, of all critical judgments; but his poetry survived the satire and eclipsed it. This was not the only poetical judgment my friend Lord Jeffrey was called upon to revoke.

I happened to be in London when Lord Byron's fame was reaching its height, and saw much of him in society. It was one of those whimsical spectacles, periodically occurring, where an idol is suddenly set up by hands which afterwards help as assiduously to take it down. Though he was far from being a great or ambitious talker, his presence at this time made the fortune of any dinner or drawing-room party for which it could be obtained; and was always known by a crowd gathered round him, the female portion generally predominating. I have seen many of these *epidemic* impulses of fashion in London society, but none more marked than this. There was a certain haughtiness or seeming indifference in his manner of receiving the homage tendered him, which did not, however, prevent him from resenting its withdrawal—an inconsistency not limited to the case of Lord Byron. Though brought into frequent intercourse by our common travels in the East, my intimacy with him went little beyond this. He was not a man with whom it was easy to cultivate friendship. He had that double or conflicting nature, well pictured by Dante, which rendered difficult any close or continued relations with him. To his fame as one of the greatest of English poets, I could add nothing by any tribute of mine. It is a fame which will be augmented rather than diminished by time.

* Too great an admirer of his own genius.

My long recollections of Moore and Campbell are somewhat saddened by the gloom which came over the latter years of these two men, whom I saw in the days of their decline as I had done in those of their greater prosperity. The differences of character, national as well as personal, were strongly marked; but there were some circumstances in common, impairing alike the happiness of both—pecuniary need more or less constant, and a morbid sensitiveness to the opinion and admiration of the world. To this was added, in Campbell, a fastidiousness of taste, which gave exquisite point and polish to his poetry, but rendered composition laborious to him, even in those shorter pieces which seem struck off in the fervour of the moment, and by which he will be best remembered hereafter. Moore had more wit, ease, and elasticity, and with his Irish temperament better confronted the cares of life. But he too endured the heavy penalty, common to so many, of fame and fashion gradually passing away—a change which few can bear with equanimity. His Journals curiously indicate what I repeatedly witnessed in my own house and elsewhere, his morbid sensitiveness, when singing his Irish ballads, to the effect they produced on those around him. In the most touching passages his eye was wandering round the room, scrutinising jealously the influence of his song.

Among the poets just named, Rogers was in many respects the most conspicuous in London society, and this for a period of more than half a century. Wealthy, unmarried, highly cultivated in all matters of literature and art, his conversation seasoned with anecdote and personal sarcasms, uttered in a curious sepulchral voice, he gained and kept a higher place than his poetry alone would have procured for him. He was the arbiter in many of the literary controversies and quarrels of his day. His dinner-table—the *blanda conciliatrix** in so many social discords—ministered well to this object. In society his most severe sarcasms were often hidden under honeyed phrases; leaving them obvious to others, while undetected by those whose foibles he assailed. There was foundation for the remark that a note from Rogers generally conveyed some indirect satire on the person to whom it was addressed—the more flattery on the surface, the more gall underneath. He could be and was ever generous to poverty and real distress, but intolerant to all that presented itself in social rivalry to himself. The usurpation by others of talk at

* Gentle reconciler.

a dinner-table, or an interruption to one of his own anecdotes, was sure to provoke some access of bitterness bitterly expressed. These feelings increased with increasing age. They were somewhat curiously modified in the distrust with which he latterly regarded his own memory—rarely venturing upon an anecdote without a *caveat* as to his having told it before. He long survived most of his contemporaries of middle life, and all those who, in retaliation of his sarcasms, were wont to spend their wit on his death-like physiognomy. I never could learn why so little has been given to the world of those Journals of which he used often to read portions to his friends, and which bore on the face of them the characteristic marks of keen observation and minute fidelity.

His dinners were fashioned in the same artistic mould as his poetry—the society small and select, the cookery superlative; no candles on the table, but light thrown from shaded lamps on the pictures around the room, each a small but consummate gem of art. As a specimen of these dinner parties, I can remember one where I met Walter Scott, Southey, Wordsworth, Crabbe, Luttrell, Lockhart, and I think my friend Henry Taylor, now the sole survivor of the number.

COMPOSITION.—Write the details given here respecting each poet in your own words, as briefly, yet fully, as you can.

NOTES. — *Wordsworth.* — See page 270. *Byron.*—See pages 67, 112. *Moore.*—See page 274. *Campbell.*—See "Fifth Reader," page 57. *Rogers, Samuel.*—Author of "The Pleasures of Memory," "Italy," &c. A London banker, and a man of elegant poetical taste. He was born in 1763, and died in 1855. *Scott.*—See "Fifth Reader," page 179. *Southey, Robert.*—An eminent poet and miscellaneous writer. Born, 1774; died, 1843. *Crabbe.*—See page 10. *Luttrell.*—A literary man of the early part of this century. *Lockhart.*—See "Fifth Reader," page 213. *Henry Taylor, Sir.* — Author of the drama, "Philip von Artevelde." Born, 1805.

MARY'S DEATH SCENE.—*Froude.**

BRIEFLY, solemnly, and sternly they delivered their awful message. They informed her that they had received a commission under the great seal to see her executed, and she was told that she must prepare to suffer on the following morning. She was dreadfully agitated. For a moment she refused to believe them. Then, as the truth forced itself upon her, tossing her head in disdain, and struggling to control herself, she called her physician, and began to speak to him of money

* See "Fifth Reader," p. 179

that was owed to her in France. At last it seems that she broke down altogether, and they left her with a fear either that she would destroy herself in the night, or that she would refuse to come to the scaffold, and that it might be necessary to drag her there by violence.

The end had come. She had long professed to expect it, but the clearest expectation is not certainty. The scene for which she had affected to prepare she was to encounter in its dread reality, and all her busy schemes, her dreams of vengeance, her visions of a revolution, with herself ascending out of the convulsion and seating herself on her rival's throne—all were gone. She had played deep, and the dice had gone against her.

Yet in death, if she encountered it bravely, victory was still possible. Could she but sustain to the last the character of a calumniated suppliant accepting heroically for God's sake and her creed's the concluding stroke of a long series of wrongs, she might stir a tempest of indignation which, if it could not save herself, might at least overwhelm her enemy. Persisting, as she persisted to the last, in denying all knowledge of Babington, it would be affectation to credit her with a genuine feeling of religion; but the imperfection of her motive exalts the greatness of her fortitude. To an impassioned believer death is comparatively easy.

At eight in the morning the provost-marshal knocked at the outer door which communicated with her suite of apartments. It was locked, and no one answered, and he went back in some trepidation lest the fears might prove true which had been entertained the preceding evening. On his returning with the sheriff, however, a few minutes later, the door was open, and they were confronted with the tall, majestic figure of Mary Stuart standing before them in splendour. The plain grey dress had been exchanged for a robe of black satin; her jacket was of black satin also, looped and slashed and trimmed with velvet. Her false hair was arranged studiously with a coif, and over her head and falling down over her back was a white veil of delicate lawn. A crucifix of gold hung from her neck. In her hand she held a crucifix of ivory, and a number of jewelled paternosters was attached to her girdle. Led by two of Paulet's gentlemen, the sheriff walking before her, she passed to the chamber of presence in which she had been tried, where Shrewsbury, Kent, Paulet, Drury, and others, were waiting to receive her. Andrew Melville, Sir Robert's brother, who had been master of her household, was kneeling in tears. "Mel-

ville," she said, "you should rather rejoice than weep that the end of my troubles is come. Tell my friends I die a true Catholic. Commend me to my son. Tell him I have done nothing to prejudice his kingdom of Scotland, and so, good Melville, farewell." She kissed him, and turning, asked for her chaplain Du Preau. He was not present. There had been a fear of some religious melodrame which it was thought well to avoid. Her ladies, who had attempted to follow her, had been kept back also. She could not afford to leave the account of her death to be reported by enemies and Puritans, and she required assistance for the scene which she meditated. Missing them, she asked the reason of their absence, and said she wished them to see her die. Kent said he feared they might scream or faint, or attempt perhaps to dip their handkerchiefs in her blood. She undertook that they should be quiet and obedient. "The Queen," she said, "would never deny her so slight a request;" and when Kent still hesitated, she added, with tears, "You know I am cousin to your Queen, of the blood of Henry the Seventh, a married Queen of France, and anointed Queen of Scotland."

It was impossible to refuse. She was allowed to take six of her own people with her, and select them herself. She chose her physician Burgoyne, Andrew Melville, the apothecary Gorion, and her surgeon, with two ladies, Elizabeth Kennedy and Curle's young wife Barbara Mowbray, whose child she had baptized. "Allons donc," she then said, "Let us go," and passing out attended by the earls, and leaning on the arm of an officer of the guard, she descended the great staircase to the hall. The news had spread far through the country. Thousands of people were collected outside the walls. About three hundred knights and gentlemen of the county had been admitted to witness the execution. The tables and forms had been removed, and a great wood fire was blazing in the chimney. At the upper end of the hall, above the fire-place, but near it, stood the scaffold, twelve feet square, and two feet and a half high. It was covered with black cloth; a low rail ran round it covered with black cloth also, and the sheriff's guard of halberdiers were ranged on the floor below on the four sides to keep off the crowd. On the scaffold was the block, black like the rest; a square black cushion was placed behind it, and behind the cushion a black chair; on the right were two other chairs for the earls. The axe leant against the rail, and two masked figures stood like mutes on either side at the back.

The Queen of Scots, as she swept in, seemed as if coming to take a part in some solemn pageant. Not a muscle of her face could be seen to quiver; she ascended the scaffold with absolute composure, looked round her smiling, and sate down. Shrewsbury and Kent followed, and took their places, the sheriff stood at her left hand, and Beale then mounted a platform and read the warrant aloud.

She laid her crucifix on her chair. The chief executioner took it as a perquisite, but was ordered instantly to lay it down. The lawn veil was lifted carefully off, not to disturb the hair, and was hung upon the rail. The black robe was next removed. Below it was a petticoat of crimson velvet. The black jacket followed, and under the jacket was a body of crimson satin. One of her ladies handed her a pair of crimson sleeves, with which she hastily covered her arms: and thus she stood on the black scaffold with the black figures all around her, blood-red from head to foot.

Her reasons for adopting so extraordinary a costume must be left to conjecture. It is only certain that it must have been carefully studied, and that the pictorial effect must have been appalling.

The women, whose firmness had hitherto borne the trial, began now to give way, spasmodic sobs bursting from them which they could not check. "Ne criez vous," she said, "j'ay promis pour vous."* Struggling bravely, they crossed their breasts again and again, she crossing them in turn, and bidding them pray for her. Then she knelt on the cushion. Barbara Mowbray bound her eyes with a handkerchief. "Adieu," she said, smiling for the last time, and waving her hand to them, "Adieu, au revoir."† They stepped back from off the scaffold, and left her alone. On her knees she repeated the Psalm, "In te, Domine, confido," "In thee, oh Lord, have I put my trust." Her shoulders being exposed, two scars became visible, one on either side, and the earls being now a little behind her, Kent pointed to them with his white hand, and looked inquiringly at his companion. Shrewsbury whispered that they were the remains of two abscesses from which she had suffered while living with him at Sheffield.

When the psalm was finished she felt for the block, and, laying down her head, muttered,—"In manus, Domine, tuas, commendo animam meam."‡ The hard wood seemed to hurt

* "Do not cry, I have given my promise for you" (that you would not).
† "Farewell, till we meet again."
‡ "Into thy hands, O Lord, I commend my spirit."

her, for she placed her hands under her neck. The executioners gently removed them, lest they should deaden the blow, and then one of them, holding her slightly, the other raised the axe and struck. The scene had been too trying even for the practised headsman of the Tower. His arm wandered. The blow fell on the knot of the handkerchief, and scarcely broke the skin. She neither spoke nor moved. He struck again, this time effectively. The head hung by a shred of skin, which he divided without withdrawing the axe; and at once a metamorphosis was witnessed, strange as was ever wrought by wand of fabled enchanter. The coif fell off and the false plaits. The laboured illusion vanished. The lady who had knelt before the block was in the maturity of grace and loveliness. The executioner, when he raised the head, as usual, to show it to the crowd, exposed the withered features of a grizzled, wrinkled old woman.

"So perish all enemies of the Queen," said the Dean of Peterborough. A loud amen rose over the hall. "Such end," said the Earl of Kent, rising and standing over the body, "to the Queen's and the Gospel's enemies."

NOTES. — *They delivered.* — Beale, who had brought the warrant for Mary's execution from London; the Earl of Shrewsbury, who had had Mary in charge some time before; and the Earl of Kent, were the Commissioners appointed to see the Warrant executed. *Babington.* — Anthony, a gentleman of Derbyshire, who, with some other Roman Catholics, entered into a plot to murder Queen Elizabeth and free Mary, who throughout was privy to their whole scheme, and in correspondence with them. The plot was detected by Walsingham, Elizabeth's minister, and Babington, and thirteen others, were executed for it, in 1586. It was also the reason of Mary's execution. *Mary Stuart.* —Daughter of James V. of Scotland and Mary of Guise. Born December 7, 1542. Taken to France, 1548. Married to the Dauphin of France, 1558. Left a widow, 1560. Returned to Scotland, 1561. Married her cousin, Lord Darnley, 1565. Her son (James VI.) born, 1566. Darnley murdered, 1567. Married the Earl of Bothwell three months after. The Scotch nobility revolt, and Mary flees to England, 1568, where she was detained till her execution, in 1587—19 years after. She was forty-five years old at her death. *Paulet.*—Sir Amyas, formerly Ambassador at Paris. In charge of Queen Mary, at Fotheringay, till her death. *Drury.*—Sir Drew, assistant to Sir A. Paulet in his charge of Mary. *Melville.* — Sir Andrew, master of Mary's household.

DICTATION.—The knave knew that the nave of the wheel was faulty. There is no need to knead the dough so very much. He knew a great many things, new and old. The knight left last night. He says he knows what a man is by the shape of his nose. The nun said she had none. As we glided o'er the waters in the sunlight the oars seemed to dip into burnished ore. The laureate owed the queen an ode. One victory won makes a hero. Our hour has come. He kept his pact, for everything was packed and ready in time. A piece of the broken pane cut him and caused him great pain. I gave a pear apiece to the pair and they began to pare them.

Tower Hill.

DEATH OF MONMOUTH.—*Hume.*

David Hume, an eminent philosopher and historian, was born in 1711. He is best known, in our day, by his "History of England," which is beautifully written, but is often awanting in strict accuracy, and blemished by partiality. Died 1776.

MONMOUTH, observing that no considerable men joined him, finding that an insurrection, which was projected in the city, had not taken place, and hearing that Argyle, his confederate, was already defeated and taken, sunk into such despondency, that he had once resolved to withdraw himself, and leave his unhappy followers to their fate. His followers expressed more courage than their leader, and seemed determined to adhere to him in every fortune. The negligent disposition made by Feversham, invited Monmouth to attack the King's army at Sedgemoor, near Bridgewater; and his men in this action showed what a native courage and a principle of duty, even when unassisted by discipline, is able to perform. They threw

the veteran forces into disorder; drove them from their ground; continued the fight till their ammunition failed them; and would at last have obtained a victory, had not the misconduct of Monmouth, and the cowardice of Gray, prevented it. After a combat of three hours the rebels gave way, and were followed with great slaughter. About 1,500 fell in the battle and pursuit. And thus was concluded in a few weeks this enterprise, rashly undertaken, and feebly conducted.

Monmouth fled from the field of battle above twenty miles, till his horse sunk under him. He then changed clothes with a peasant, in order to conceal himself. The peasant was discovered by the pursuers, who now redoubled the diligence of their search. At last the unhappy Monmouth was found lying in the bottom of a ditch, and covered with fern: his body depressed with fatigue and hunger; his mind by the memory of past misfortunes, by the prospect of future disasters. Human nature is unequal to such calamitous situations; much more the temper of a man softened by early prosperity, and accustomed to value himself solely on military bravery. He burst into tears when seized by his enemies, and he seemed still to indulge the fond hope and desire of life. Though he might have known, from the greatness of his own offence, and the severity of James's temper, that no mercy could be expected, he wrote him the most submissive letters, and conjured him to spare the issue of a brother, who had ever been so strongly attached to his interest. James, finding such symptoms of depression and despondency in the unhappy prisoner, admitted him to his presence, in hopes of extorting a discovery of his accomplices; but Monmouth would not purchase life, however loved, at the price of so much infamy. Finding all efforts vain, he assumed courage from despair, and prepared himself for death, with a spirit better suited to his rank and character. This favourite of the people was attended to the scaffold with a plentiful effusion of tears. He warned the executioner not to fall into the error which he had committed in beheading Russell, where it had been necessary to repeat the blow. This precaution served only to dismay the executioner. He struck a feeble blow on Monmouth, who raised his head from the block, and looked him in the face, as if reproaching him for his failure. He gently laid down his head a second time, and the executioner struck him again and again to no purpose. He then threw aside the axe, and cried out that he was incapable of finishing the bloody office. The sheriff obliged him to

renew the attempt, and at two blows more the head was severed from the body.

NOTES.—*Monmouth.*—Duke of, was the son of Charles II. and a girl called Lucy Walters. He was born in 1649; was banished from England for his connection with the "Rye House Plot," in 1683; he invaded England, at Lyme, 11th June, 1685; was proclaimed king, at Taunton, 20th June; was defeated at Sedgmoor, near Bridgewater, 6th July; and was beheaded on Tower Hill, 15th July. *Argyle.*—Archibald, Earl of, a zealous Royalist while Cromwell lived, but a determined opponent of James II., on account of his Romish measures. He was beheaded in June, 1685, at Edinburgh. *Feversham.*—The Earl of, James's general. *Bridgewater.*—A town in Somerset, ten miles from Taunton. *Gray.*—Lord, head of Monmouth's cavalry. He and Monmouth both fled from the field. *James.*—Son of Charles I.; born 1633; succeeded Charles II., 1685; driven from the throne by the Revolution, 1688; died in France, 1701. *Russell.*—Lord William; beheaded in 1683, on the most worthless evidence, as concerned in the "Rye House Plot," against James II.; born, 1639.

Chaucer.

AN APRIL DAY.—*Geoffrey Chaucer.*

Born, 1328; Died, 1400.

ALL day the low-hung clouds have dropt
Their garnered fulness down;
All day that soft gray mist hath wrapt
Hill, valley, grove, and town.
There has not been a sound to-day
To break the calm of nature:
Nor motion, I might almost say,
Of life, or living creature;

Of waving bough, or warbling bird,
Or cattle faintly lowing;
I could have half-believed I heard
The leaves and blossoms growing.
I stood to hear—I love it well,
The rain's continuous sound,
Small drops, but thick and fast they fell,
Down straight into the ground.
For leafy thickness is not yet
Earth's naked breast to screen,
Though every dripping branch is set
With shoots of tender green.
Sure since I looked at early morn,
Those honeysuckle buds
Have swelled to double growth; that thorn
Hath put forth larger studs;
That lilac's cleaving cones have burst,
The milk-white flowers revealing;
Even now, upon my senses first
Methinks their sweets are stealing.
The very earth, the steamy air
Is all with fragrance rife;
And grace and beauty everywhere
Are flushing into life.
Down, down they come—those fruitful stores!
Those earth-rejoicing drops!
A momentary deluge pours,
Then thins, decreases, stops;
And ere the dimples on the stream
Have circled out of sight,
Lo! from the west, a parting gleam
Breaks forth, of amber light.
But yet behold—abrupt and loud,
Comes down the glittering rain:
The farewell of a passing cloud,
The fringes of her train.*

* Modernised in spelling and in some obsolete words.

SONG—ON MAY MORNING.—*John Milton.*

Born, 1608; Died, 1674.

Now the bright morning star, day's harbinger,
Comes dancing from the east, and leads with her
The flowery May, who from her green lap throws
The yellow cowslip, and the pale primrose.
Hail, bounteous May, that doth inspire
Mirth, and youth, and warm desire;
Woods and groves are of thy dressing,
Hill and dale doth boast thy blessing.
Thus we salute thee with our early song,
And welcome thee, and wish thee long.

HAMLET AND THE GRAVEDIGGERS.—*Shakspere.*

(HAMLET. ACT. V. SCENE I.—*A Churchyard.*)

Ham. Hath this fellow no feeling of his business that he sings at grave-making?

Hor. Custom hath made it in him a property of easiness.

Ham. 'Tis e'en so: the hand of little employment hath the daintier sense.

1 *Clown.* [*Sings.*]

But age with his stealing steps
Hath caught me in his clutch,
And hath shipped me intill the land,
As if I had never been such.

[*Throws up a skull.*

Ham. That skull had a tongue in it, and could sing once: how the knave jowls it to the ground, as if it were Cain's jaw-bone, that did the first murther! It might be the pate of a politician, which this ass now o'er offices; one that could circumvent God, might it not?

Hor. It might, my lord.

Ham. Or of a courtier; which could say, "Good-morrow, sweet lord! How dost thou, good lord?" This might be my lord Such-a-one, that praised my lord Such-a-one's horse, when he meant to beg it; might it not?

Hor. Ay, my lord.

Ham. Why, e'en so; and now my lady Worm's; chapless, and knocked about the mazzard with a sexton's spade: Here's fine

revolution, if we had the trick to see't. Did these bones cost no more the breeding, but to play at loggats with them? mine ache to think on't.

1 *Clo.*

A pick-axe, and a spade, a spade,
For—and a shrouding sheet:
O, a pit of clay for to be made
For such a guest is meet.

[*Throws up a skull.*

Ham. There's another! Why might not that be the skull of a lawyer? Where be his quiddits now, his quillets, his cases, his tenures, and his tricks? why does he suffer this rude knave now to knock him about the sconce with a dirty shovel, and will not tell him of his action of battery? Humph! This fellow might be in's time a great buyer of land, with his statutes, his recognizances, his fines, his double vouchers, his recoveries: is this the fine of his fines, and the recovery of his recoveries, to have his fine pate full of fine dirt? will his vouchers vouch him no more of his purchases, and double ones too, than the length and breadth of a pair of indentures? The very conveyances of his lands will hardly lie in this box; and must the inheritor himself have no more? ha!

Hor. Not a jot more, my lord.

Ham. Is not parchment made of sheep-skins?

Hor. Ay, my lord, and of calves'-skins too.

Ham. They are sheep, and calves, that seek out assurance in that. I will speak to this fellow:—Whose grave's this, sir?

Clo. Mine, sir.

O, a pit of clay for to be made
For such a guest is meet.

Ham. I think it be thine, indeed; for thou liest in't.

Clo. You lie out on't, sir, and therefore it is not yours: for my part, I do not lie in't, and yet it is mine.

Ham. Thou dost lie in't, to be in't, and say it is thine: 'tis for the dead, not for the quick; therefore thou liest.

1 *Clo.* 'Tis a quick lie, sir; 'twill away again, from me to you.

Ham. What man dost thou dig it for?

1 *Clo.* For no man, sir.

Ham. What woman, then?

1 *Clo.* For none neither.

Ham. Who is to be buried in't?

1 *Clo.* One that was a woman, sir; but, rest her soul, she's dead.

Ham. How absolute the knave is! we must speak by the card, or equivocation will undo us. By the lord, Horatio, these three

years I have taken note of it; the age is grown so picked, that the toe of the peasant comes so near the heel of the courtier, he galls his kibe.—How long hast thou been a grave-maker?

1 *Clo.* Of all the days i' the year, I came to 't that day that our last king—Hamlet, o'ercame Fortinbras.

Ham. How long is that since?

1 *Clo.* Cannot you tell that? every fool can tell that: it was the very day that young Hamlet was born: he that was mad, and sent into England.

Ham. Ay, marry, why was he sent into England?

1 *Clo.* Why, because he was mad: he shall recover his wits there; or, if he do not; it's no great matter there.

Ham. Why?

1 *Clo.* 'Twill not be seen in him; there the men are as mad as he.

Ham. How came he mad?

1 *Clo.* Very strangely, they say.

Ham. How strangely?

1 *Clo.* 'Faith, e'en with losing his wits.

Ham. Upon what ground?

1 *Clo.* Why, here in Denmark: I have been sexton here, man and boy, thirty years.

Ham. How long will a man lie i' the earth ere he rot?

1 *Clo.* 'Faith, if he be not rotten before he die (as we have many pocky corses now-a-days, that will scarce hold the laying in), he will last you some eight year, or nine year. A tanner will last you nine year.

Ham. Why he more than another?

1 *Clo.* Why, sir, his hide is so tanned with his trade, that he will keep out water a great while; and your water is a sore decayer of your dead body. Here's a skull now; this skull hath lain i' the earth three and twenty years.

Ham. Whose was it?

1 *Clo.* A mad fellow's it was: whose do you think it was?

Ham. Nay, I know not.

1 *Clo.* A pestilence on him for a mad rogue? 'a poured a flagon of Rhenish on my head once. This same skull, sir; this same skull, sir, was Yorick's skull, the king's jester.

Ham. This?

1 *Clo.* E'en that.

Ham. Let me see. Alas, poor Yorick!—I knew him, Horatio: a fellow of infinite jest, of most excellent fancy: he hath borne me on his back a thousand times; and now how abhorred my imagination is! my gorge rises at it. Here hung those lips, that

I have kissed I know not how oft. Where be your gibes now? your gambols? your songs? your flashes of merriment, that were wont to set the table on a roar? Not one now, to mock your own jeering? quite chap-fallen? Now get you to my lady's chamber, and tell her, let her paint an inch thick, to this favour she must come; make her laugh at that.—Pr'ythee, Horatio, tell me one thing.

Hor. What's that, my lord?

Ham. Dost thou think Alexander looked o' this fashion i' the earth?

Hor. E'en so.

Ham. And smelt so? puh! [*Throws down the skull.*

Hor. E'en so, my lord.

Ham. To what base uses we may return, Horatio! Why may not imagination trace the noble dust of Alexander, till he find it stopping a bung-hole?

Hor. 'Twere to consider too curiously, to consider so.

Ham. No, faith, not a jot; but to follow him thither with modesty enough, and likelihood to lead it. As thus; Alexander died, Alexander was buried, Alexander returneth into dust; the dust is earth; of earth we make loam. And why of that loam, whereto he was converted, might they not stop a beer-barrel?

Imperial Cæsar, dead, and turn'd to clay,
Might stop a hole to keep the wind away;
O, that that earth, which kept the world in awe;
Should patch a wall to expel the winter's flaw!

NOTES.—*Jowls.*—To *jowl* is still used in the north of England for *to beat*. Here it is to *throw with force*. *Politician.*—A schemer for his own advantage, a plotter. "I had as lief be a Brownist (an Independent) as a politician." — '*Twelfth Night.*' *Mazzard.*—A skull. Perhaps from *mazer* (Spenser), a goblet—from the shape. *Loggats.*—An old game in which wooden pins were thrown at a stake, as in the vulgar game of *Aunt Sally*, now. *Loggat*, a diminutive of *log*. *Quiddets, quiddities*, subtle questions, from *quid*, what? *quillets*, subtleties. *Cases*, &c.—The list that follows is made up of phrases, &c., used in law. The lawyer, when alive, argued about *cases* that supported his side, *tenures* by which property was *held*; *statutes* to which he appealed; *recognisances*, or *bonds given* in a cause; *fines*, or sums due on a tenure; *double vouchers*, or duplicate attestations in a suit to prove a title to property, such suits being known as suits of common *recovery*; *indentures*, writings containing a contract. Two copies used to be *indented* or cut so as to correspond to each other, hence the name; *conveyance*, the deed by which land, &c., is *conveyed* to an owner. *Absolute.*—Positive, certain. *The Card.*—A sea-chart and the card of a compass were both spoken of as *a card*, in Shakspere's time. But the allusion may be to the *card* or *book of manners*, of which several were published in Shakspere's day. *So picked.*—So refined, fastidious, precise. *Kibe*, a chilblain. *Hamlet o'ercame.*—The whole story of Hamlet is legendary. *Rhenish.*—Wine from the Rhine countries. *Abhorred.*—Here used passively for "terrified," "filled with loathing." *Gorge.*—Throat. *Flaw.*—The cracks, &c., made by winter storms.

RURAL LIFE IN SWEDEN.—*H. W. Longfellow.*

Henry Wadsworth Longfellow is an eminent American poet. He was born at Portland, Maine, U.S., in 1807. He is Professor of Modern Languages, at Hartford College, Massachusetts. His poems are well known wherever English is spoken.

THERE is something patriarchal still lingering about rural life in Sweden, which renders it a fit theme for song. Almost primeval simplicity reigns over that northern land, almost primeval solitude and stillness. You pass out from the gate of the city, and, as if by magic, the scene changes to a wild woodland landscape. Around you are forests of fir. Overhead hang the long fan-like branches trailing with moss, and heavy with red and blue cones. Under foot is a carpet of yellow leaves; and the air is warm and balmy. On a wooden bridge you cross a little silver stream, and anon come forth into a pleasant and sunny land of farms. Wooden fences divide the adjoining fields. Across the road are gates, which are opened by troops of children. The peasants take off their hats as you pass; you sneeze, and they cry "God bless you!" The houses in the villages and smaller towns are built of hewn timber, and for the most part painted red. The floors of the taverns are strewed with the fragrant tips of fir-boughs. In many villages there are no taverns, and the peasants take turns in receiving travellers. The thrifty housewife shows you into the best chamber, the walls of which are hung round with rude pictures from the Bible; and brings you her heavy silver spoon —an heirloom—to dip the curdled milk from the pan. You have oaten cakes baked some months before, or bread with anise-seed and coriander in it, or perhaps, a little pine-bark. Meanwhile, the sturdy husband has brought the horses from the plough, and harnessed them to your carriage. Solitary travellers come and go in uncouth one-horse chaises. Most of them have pipes in their mouths, and, hanging around their necks in front, a leather wallet, in which they carry tobacco and the great banknotes of the country, as large as your two hands. You meet also groups of Dalekarlian peasant women, travelling homeward, or townward in pursuit of work. They walk barefoot, carrying in their hands their shoes, which have high heels under the hollow of the foot, and soles of birch-bark.

Frequent, too, are the village churches, standing by the roadsides, each in its own little garden of Gethsemane. In

the parish register great events are doubtless recorded. Some old king was christened or buried in that church; and a little sexton, with a rusty key, shows you the baptismal font or the coffin. In the churchyard are a few flowers, and much green grass; and daily the shadow of the church-spire, with its long tapering finger, counts the tombs, representing the dial-plate of human life, on which the hours and minutes are the graves of men. The stones are flat, and large, and low, and perhaps sunken, like the roofs of old houses. On some are armorial bearings; on others only the initials of the poor tenants, with a date, as on the roofs of Dutch cottages. They all sleep with their heads to the westward. Each held a lighted taper in his hand when he died; and in his coffin were placed his little heart-treasures, and a piece of money for his last journey. Babes that came lifeless into the world were carried in the arms of grey-haired old men to the only cradle they ever slept in; and in the shroud of the dead mother were laid the little garments of the child that lived and died in her bosom. And over this scene the village pastor looks from his window in the stillness of midnight, and says in his heart, "How quietly they rest, all the departed!"

Near the churchyard-gate stands a poor-box, fastened to a post with iron bands, and secured by a padlock, with a sloping wooden roof to keep off the rain. If it be Sunday, the peasants sit on the church-steps and con their psalm-books. Others are coming down the road with their beloved pastor, who talks to them of holy things from beneath his broad-brimmed hat. He speaks of fields and harvest, and of the parable of the sower that went forth to sow. He leads them to the Good Shepherd, and to the pleasant pastures of the spirit-land. He is their patriarch, and, like Melchizedek, both priest and king, though he has no other throne than the church pulpit. The women carry psalm-books in their hands, wrapped in silk-handkerchiefs, and listen devoutly to the good man's words; but the young men, like Gallio, care for none of these things. They are busy counting the plaits in the kirtles of the peasant girls, their number being an indication of the wearer's wealth. It may end in a wedding.

I will endeavour to describe a village wedding in Sweden. It shall be in summer time, that there may be flowers, and in a southern province, that the bride may be fair. The early song of the lark and of chanticleer are mingling in the clear morning air, and the sun, the heavenly bridegroom with golden

locks, arises in the east, just as our earthly bridegroom, with yellow hair, arises in the south. In the yard there is a sound of voices and trampling of hoofs, and horses are led forth and saddled. The steed that has to bear the bridegoom has a bunch of flowers upon his forehead and a garland of cornflowers around his neck. Friends from the neighbouring farms come riding in, their blue cloaks streaming to the wind; and, finally, the happy bridegroom, with a whip in his hand and a monstrous nosegay in the breast of his black jacket, comes forth from his chamber; and then to horse and away towards the village, where the bride already sits and waits.

Foremost rides the spokesman, followed by some half dozen village musicians. Next comes the bridegroom, between his two groomsmen, and then forty or fifty friends and wedding guests, half of them perhaps with pistols and guns in their hands. A kind of baggage-waggon brings up the rear, laden with food and drink for these merry pilgrims. At the entrance of every village stands a triumphal arch, adorned with flowers and ribands and evergreens; and as they pass beneath it the wedding guests fire a salute, and the whole procession stops. And straight from every pocket flies a blackjack filled with punch or brandy. It is passed from hand to hand among the crowd; provisions are brought from the waggon, and, after eating and drinking and hurrahing, the procession moves forward again, and at length draws near the house of the bride. Four heralds ride forward to announce that a knight and his attendants are in the neighbouring forest, and pray for hospitality. "How many are you?" asks the bride's father. "At least three hundred," is the answer; and to this the host replies, "Yes; were you seven times as many you should all be welcome; and in token thereof receive this cup." Whereupon each herald receives a can of ale; and soon after the whole jovial company comes storming into the father's yard, and, riding round the maypole which stands in the centre, alight amid a grand salute and flourish of music. In the hall sits the bride, with a crown upon her head and a tear in her eye, like the Virgin Mary in old church paintings. She is dressed in a red bodice and kirtle, with loose linen sleeves. There is a gilded belt round her waist, and around her neck strings of golden beads and a golden chain. On the crown rests a wreath of wild roses, and below it another of cypress. Loose over her shoulders falls her flaxen hair; and her blue innocent eyes are fixed upon the ground. O thou good soul!

thou hast hard hands, but a soft heart! Thou art poor: the very ornaments are not thine; they have been hired for this great day. Yet thou art rich—rich in health, rich in hope, rich in thy first young fervent love. The blessings of Heaven be upon thee! So thinks the parish priest, as he joins together the hands of bride and bridegroom, saying, in deep solemn tones, "I give thee in marriage this damsel, to be thy wedded wife in all honour; and to share thy house, thy lock and key, and every third penny which you two may possess, or may inherit, and all the rights which Upland's laws provide, and the holy King Erik gave."

The dinner is now served, and the bride sits between the bridegroom and the priest. The spokesman delivers an oration, after the ancient custom of his fathers. He interlards it well with quotations from the Bible, and invites the Saviour to be present at the marriage-feast, as He was at the marriage-feast of Cana of Galilee. The table is not sparingly set forth. Each makes a long arm, and the feast goes cheerily on. Punch and brandy pass round between the courses, and here and there a pipe is smoked, while waiting for the next dish. They sit long at table; but, as all things must have an end, so must a Swedish dinner. Then the dance begins. It is led off by the bride and the priest, who perform a solemn minuet together. Not till after midnight comes the last dance. The girls form a ring around the bride, to keep her from the hands of the married women, who endeavour to break through the magic circle and seize their new sister. After long struggling they succeed: and the crown is taken from her head and the jewels from her neck. And this is a village bridal!

Nor must I forget the suddenly-changing seasons of the northern clime. There is no long and lingering spring, unfolding leaf and blossom one by one; no long and lingering autumn, pompous with many-coloured leaves and the glow of Indian summers. But winter and summer are wonderful, and pass into each other. The quail has hardly ceased piping in the corn, when winter, from the folds of trailing clouds, sows broadcast over the land snow, icicles, and rattling hail. The days wane apace. Ere long the sun hardly rises above the horizon or does not rise at all. The moon and the stars shine through the day; only, at noon, they are pale and wan, and in the southern sky a red, fiery glow, as of sunset, burns along the horizon, and then goes out. And pleasantly under the silver moon, and under the solemn silent stars, ring the steel

shoes of the skaters on the frozen sea, and voices, and the sound of bells.

And now the northern lights begin to burn, faintly at first, like sunbeams playing in the waters of the blue sea. Then a soft crimson glow tinges the heavens. There is a blush on the cheek of night. The colours come and go, and change from crimson to gold, from gold to crimson. The snow is stained with rosy light. Twofold from the zenith, east and west, flames a fiery sword; and a broad band passes athwart the heavens like a summer sunset. Soft purple clouds come sailing over the sky, and through their vapoury folds the winking stars shine white as silver. With such pomp as this is merry Christmas ushered in, though only a single star heralded the first Christmas. And in memory of that day the Swedish peasants dance on straw, and the peasant-girls throw straws at the timbered roof of the hall, and for every one that sticks in a crack shall a groomsman come to their wedding. Merry Christmas indeed! For pious souls there shall be church-songs and sermons, but for Swedish peasants brandy and nut-brown ale in wooden bowls: and the great Yule cake crowned with a cheese, and garlanded with apples, and upholding a three-armed candlestick over the Christmas feast.

And now the glad leafy midsummer, full of blossoms and the song of nightingales, is come! St. John has taken the flowers and festival of heathen Balder; and in every village there is a maypole fifty feet high, with wreaths and roses, and ribands streaming in the wind, and a noisy weathercock on top, to tell the village whence the wind cometh and whither it goeth. The sun does not set till ten o'clock at night, and the children are at play in the streets an hour later. The windows and doors are all open, and you may sit and read till midnight without a candle. Oh, how beautiful is the summer night, which is not night, but a sunless yet unclouded day, descending upon earth with dews and shadows and refreshing coolness! How beautiful the long mild twilight, which, like a silver clasp, unites to-day with yesterday! How beautiful the silent hour, when morning and evening thus sit together, hand in hand, beneath the starless sky at midnight! From the church-tower in the public square the bell tolls the hour, with a soft musical chime: and the watchman, whose watch-tower is the belfry, blows a blast on his horn for each stroke of the hammer; and four times, to the four corners of the heavens, in a sonorous voice he chants—

Ho! watchman, ho!
Twelve is the clock!
God keep our town
From fire and brand
And hostile hand!
Twelve is the clock!

From his swallow's nest in the belfry he can see the sun all night long; and, farther north, the priest stands at his door in the warm midnight, and lights his pipe with a common burning-glass.

COMPOSITION.—Write out an account of a Swedish marriage, in your own words.

ENGLISH LIBERTY.—*William Cowper.*

See page 171. This extract is from the Fifth Book of "The Task."

We love
The king who loves the law, respects his bounds,
And reigns content within them; him we serve
Freely and with delight, who leaves us free:
But recollecting still that he is man,
We trust him not too far. King though he be,
And king in England too, he may be weak,
And vain enough to be ambitious still;
May exercise amiss his proper powers,
Or covet more than freemen choose to grant:
Beyond that mark is treason. He is ours,
To administer, to guard, to adorn the state,
But not to warp or change it. We are his,
To serve him nobly in the common cause,
True to the death, but not to be his slaves.
Mark now the difference, ye that boast your love
Of kings, between your loyalty and ours:
We love the man, the paltry pageant you;
We, the chief patron of the commonwealth,
You, the regardless author of its woes;
We, for the sake of liberty, a king,
You chains and bondage for a tyrant's sake.
Our love is principle, and has its root
In reason,—is judicious, manly, free;
Yours, a blind instinct, crouches to the rod,
And licks the foot that treads it in the dust.
Were kingship as true treasure as it seems,

Sterling, and worthy of a wise man's wish,
I would not be a king to be beloved
Causeless, and daubed with undiscerning praise,
Where love is mere attachment to the throne,
Not to the man who fills it as he ought.
'Tis liberty alone that gives the flower
Of fleeting life its lustre and perfume;
And we are weeds without it. All constraint,
Except what wisdom lays on evil men,
Is evil; hurts the faculties, impedes
Their progress in the road of science, blinds
The eyesight of discovery, and begets
In those that suffer it, a sordid mind
Bestial, a meagre intellect, unfit
To be the tenant of man's noble form.
Thee therefore still, blameworthy as thou art,
With all thy loss of empire, and though squeezed
By public exigence till annual food
Fails for the craving hunger of the state,
Thee I account still happy, and the chief
Among the nations, seeing thou art free!
My native nook of earth! thy clime is rude,
Replete with vapours, and disposes much
All hearts to sadness, and none more than mine:
Thine unadulterate manners are less soft
And plausible than social life requires,
And thou hast need of discipline and art
To give thee what politer France receives
From nature's bounty,—that humane address
And sweetness, without which no pleasure is
In converse, either starved by cold reserve,
Or flushed with fierce dispute, a senseless brawl:
Yet, being free, I love thee: for the sake
Of that one feature can be well content,
Disgraced as thou hast been, poor as thou art,
To seek no sublunary rest beside.
But once enslaved, farewell! I could endure
Chains nowhere patiently; and chains at home,
Where I am free by birthright, not at all.

NOTE.—*Loss of Empire.*—The thirteen American colonies, now the United States, were lost to England through the American war, which ended by the peace of 1783. The *Task* was published in 1785. Harvest had also failed several years in England, about that time.

LESSONS ON SPECIFIC SUBJECTS.

ASTRONOMY.

1.—FORM AND SIZE OF THE EARTH.

1. To a child the stars seem only points of light, of no size compared with the earth on which he dwells, and the earth appears to be the centre round which they are all shining in a great arched sky. In the early ages of the world, when grown men were still children in the knowledge of the heavens, this was the universal opinion. The heavens were supposed to be a solid arch or *firmament*, bending down to the edges of the world, with the sun and moon circling round this world as the centre of all. Wider notions gradually rose, but it was not till Copernicus published his new system just before his death in 1543*—not 350 years ago—that the great truth was proclaimed, which every boy at our schools knows to-day, that the sun is the centre round which not only the moon and the planets, but our globe itself revolves.

2. It seems strange that the earth should move thus, without our knowing, but it will cease to appear so when we remember that *it moves as a whole*—the sea, the clouds, the air, and the landscape together, so that there is no change of position in one towards another, no shock or interference with the daily order of nature, and no sense of motion, but a silent gliding through the heavens. It is thus the same as when a voyager, in the cabin of a vessel dropping down a calm river, is unconscious of the ship's moving while he looks only at the things in the cabin around him, which all keep their places and move as he moves.

3. It is only when he looks to some fixed object on the shore, or on the river, and sees his vessel approaching it or leaving it behind, that he knows he is being carried onwards. *We gain the sense of motion only by seeing our change of position* towards objects around us.

If, however, we did not know that the objects at which we looked were themselves stationary, we could not learn whether we or they were moving, just as in a railway train everything seems to be rushing past while we appear to stand still. This is why we fancy that the sun really rises in the east and moves over us till he sets in the west. The motion of the earth, which we do not feel, makes it seem as if the sun were moving, and the earth were at rest, and it is from other evidence than

* Charles V. was then 43 years old; Henry VIII. had just beheaded Catherine Howard, and was about to marry Katherine Parr, his last wife. He was in the fortieth year of his reign, and the fifty-second of his age. Francis I., then 49, had been king of France for 28 years. He and Henry were within four years of their death (1547).

that of our senses, that we accept the statement as correct, that it is the earth that moves while the sun stands still.

4. It is the same with our ideas of the shape of the earth. In early ages, men supposed it was a great plain, roughened by mountains, and varied by seas, lakes, and rivers. Children still think of it in this way. But if you turn to page 40 of the "Fourth Reader," you will find many things stated from which we know that the earth is round, like an orange, not flat like a table. Perhaps a few proofs in addition may be of interest.

When we see the sun rise in the east each morning, after setting in the west the evening before, we cannot doubt its being the same sun, and that it must have gone under the earth and round it, from one side to the other. That it does not re-appear always at the same place, but in a different one each day, as we may find if we observe, is proof that it does not pass through any special opening under the earth, but can move freely in its own course. Then, the moon and stars rise and set at every point of the horizon, and they could not do so if the earth were any other shape than round. The under side of the earth must, besides, have a sky like ours, since our sun and moon and planets thus pass below it as they do, and it must have day and night, and sunshine, &c., just as we have. The earth can therefore rest on nothing, but must float in space, with skies all round it.

5. It is also found that wherever a clear view can be had from a height, it may be from a mast-head at sea, or from a mountain top, the horizon always, in every part of the earth, forms a circle of which the observer is the centre. The view does not fade away in distance and mist, but is a sharp and well-marked line, showing that our not seeing farther must rise from the sinking of the ocean or landscape below the line of our vision. Only a globe could exhibit this peculiarity.

6. That it is so is confirmed by the additional fact, that the circle of the horizon round us increases, as we ascend to a higher point, in just that degree in which it must in the case of a globe of a certain size. Thus, the portion of the earth's surface seen by MM. Biot and Gay Lussac, in their great balloon ascent, from the height of nearly five miles, was equal to $\frac{1}{1800}$th part of the whole round of the globe, and the view from the Peak of Teneriffe is about $\frac{1}{4000}$th. Such a sinking of the horizon into greater or lesser circles from whatever point the view be taken—the circles being greater in proportion to the height from which the observer looks round him, is a property belonging only to a globular body.

7. Other proofs are given in the "Fourth Reader" and therefore need not be repeated. It has been found, however, by very delicate processes, that the earth is not a perfect sphere, but is about twenty-seven* miles less in diameter from Pole to Pole than through the centre at the equator. But this is a deviation so small, that it would make only the 20th of an inch difference, in the two diameters, on a globe of 16 inches.

* Herschel made it 26·478 miles. The latest measurement makes it 26·890.

8. The inequalities on the earth's surface caused by mountain ranges, are of equally little moment, for they affect the general figure of the earth no more than the roughnesses on the rind of an orange do the shape of the orange. The highest mountain in the world is Mount Everest, one of the Himalayas, which is 29,100 feet, or 5½ miles, above the level of the sea, and the next is Deodhunga, in the same range, which is 29,000 feet high. But these stupendous mountains would be represented on a globe of 16 inches diameter, by an elevation of not more than about the $\frac{1}{100}$th of an inch—that is, by two of the smallest visible grains of sand. On such a globe, the deepest mine would be represented by a scratch so fine as to be invisible without a magnifying-glass, and the ocean would be shown, in due proportion to its greatest depth, by a scratch as deep as the two grains of sand which stand for the mountains.

9. The earth at the equator is 7,926 miles in diameter (omitting decimals), and at the Poles 7,899 miles, or, to speak in round numbers, its general diameter is about 8,000 miles, while its circumference at the equator is a little less than 25,000 (24,899).

MOTIONS OF THE EARTH.

1.—Day and Night.

1. The earth being round, only half of its surface can be presented to the sun at a time, but as it revolves on its axis once in every twenty-four hours, each side receives the sun's light and warmth alternately in that period. The side on which the light shines enjoys Day; that which is in darkness has Night—the darkness being only the shadow of the body of the earth itself. You can illustrate day and night readily by holding a large ball towards a lamp and turning it slowly round from west to east. One half will always lie in the light, while the other half lies in a cone of shadow, from the round body of the ball itself. We thus see the stars by night, by their shining out from the part of the sky darkened by the shadow of the earth. They are hidden by day in the greater brightness of the sun's light, just as a lamp throws no rays that we can see so long as the sun is shining, but becomes bright when it has set.

2.—The Seasons.

1. Besides the motion of the earth on its own axis, on which it revolves every twenty-four hours, there is another and a grander motion by which it travels round the sun each year—or, more exactly, in 365 days, 6 hours, 9 minutes and 10 seconds — which is equal to a constant advance on its journey of about 19 miles a second, or over 68,000 each hour, and over 1,600,000 each day! The shape of the orbit in which it thus moves is not round but longer than it is broad, that is, an ellipse, as shown in Fig. 67.

2. If the earth revolved round the sun, with its Poles always exactly north and south of the path in which it moves, so as always to present the same parts to the sun, there would be no change of seasons. The sun's rays would always fall, in the same proportion, on the same parts of the earth's surface, extending from Pole to Pole, and days and nights would, everywhere, be each twelve hours long (Fig. 65).

3. But it does not move round the sun in this way. It leans over at an angle of about 66½° as in Fig. 66, and hence the direction in

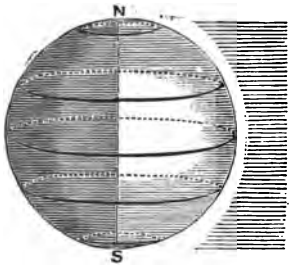


Fig. 65.

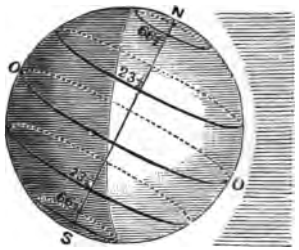


Fig. 66.

which the sun's rays fall on it is continually changing, and this change causes the seasons. For it is of course just in proportion to the amount of heat and light received from the sun that there is winter or summer, or spring or autumn. In this illustration the earth is in the same position towards the sun as at A in Fig. 67. The sun's rays are, there, most nearly perpendicular to the surface of the northern hemisphere, and hence it is the summer of that region, and the day is at its longest, while they fall obliquely on the southern hemisphere, and thus it is winter there, and the day is at its shortest. After a time this is reversed, and the southern Pole, as at C, is nearest the sun, while the northern Pole is away from it; and hence it is winter in the north, and summer at the south.

4. The earth, and its encircling atmosphere, weigh at least 5,178,000,000,000,000—5 billions 178 thousands of thousands of millions of tons! How inconceivable must that force be which moves such a stupendous weight, night and day, for ever, at the rate of more than 19 miles in a single beat of a pendulum! It has been found that, if the earth were at any time to be suddenly stopped, the heat developed by its being so would melt the entire world, and even dissipate a great part of it in vapour!

5. Every one must have noticed that the sun rises higher in the heavens at some seasons than at others—making an arch of greater or less sweep through the skies, and rising and setting in different places as the year advances. When it passes high over us at noon, and stays long above

the horizon, we have, of course, long days and greater warmth; when it makes a lower arch, and is seen for a shorter time each day, we have shorter days and colder weather. It is this position of the earth in relation to the sun that causes the SEASONS, with their varying length of day and night and their contrasts of warmth and cold.

6. Let us look more closely at the illustration (Fig. 67), however, that we may fully understand these phenomena. It is a diagram of the orbit or path in which the earth moves round the sun, which, as you see, is not in a circle, but along an ellipse.

7. You notice that the north and south Poles, on which the earth revolves every twenty-four hours, to make day and night, are not north and south—that is, perpendicular to the path in which the earth travels round the sun—but lean at a certain angle, which, as I have already told you, is 66½°, or 23½° off the perpendicular. If you look at the four figures of the earth at different parts of its yearly orbit, you will further see that it always keeps the same position towards the sun, as far as this inclination is concerned; the Poles always leaning at the same angle from the earth's orbit.

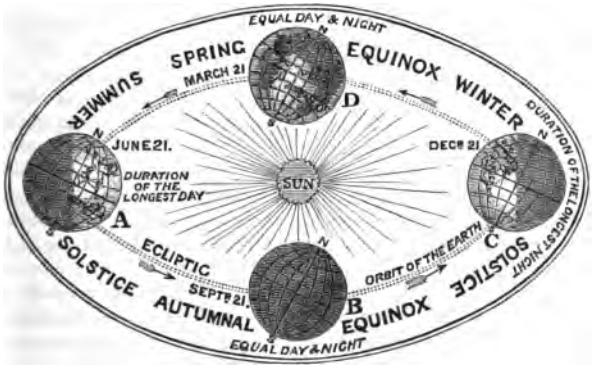


Fig. 67.

8. It is to this inclination of the earth's axis we owe the seasons. The dotted curve is the earth's orbit, as seen in perspective. The sun is represented in the centre. At A the earth is in the position when summer reigns in the northern hemisphere, and winter in the southern—the North Pole being turned towards the light, and the South Pole away from it. On the 21st of June the earth is in what is called its summer solstice*, that is, the sun is at its greatest summer distance from the equator, and then appears to *stand still* and not to change his distance from the equator for some time.

* From Latin *sol*, the sun, and *sto*, to stand.

9. On the 21st September, the earth, having traversed one-fourth of its orbit, has reached the position B. The poles still point the same way, but the earth now presents its side, from pole to pole, to the sun, and his rays fall perpendicularly on the equator. The surface of the earth is, therefore, illuminated just as it would be if the poles were perpendicular to its orbit, so as to turn its whole side to the sun. Hence day and night are everywhere equal. This is the time of autumn in the northern hemisphere and of spring in the southern. The 21st September, when the sun crosses the equator thus, is called the autumnal *equinox*,* from its causing equal nights and days.

10. When the earth has travelled over another quarter of its orbit, it arrives, on the 21st December, at C, its winter solstice; and now its South Pole is turned towards the sun, and enjoys the continual day which the North Pole enjoyed six months before, while that Pole now lies in the shadow of an unbroken night, just as the South Pole lay, in June. The rays of the sun now fall perpendicularly on the tropic† of Capricorn, and we have the southern summer and the northern winter.

11. As the earth moves on to the east the days gradually shorten in the southern hemisphere, and lengthen in the northern. The circle of daily light approaches the poles, and reaches them on the 21st March, which is the spring equinox, or time of equal day and night. The earth is then at D. The sun's rays now again fall perpendicularly on the equator, so as to reproduce the equality of day and night, just as when the earth was at B six months before. It is now spring in the northern and autumn in the southern hemisphere.

12. As the earth moves eastward from D, the sun's rays fall perpendicularly on places farther and farther north till, at last, when it has come back to its position at A, they are once more perpendicular to the tropic of Cancer. The northern summer has now again come, and the seasons have run their round.

13. You can understand by this how day and night vary through the year, and how the seasons come in their turn. In the course of the year, every part of the globe has as many hours of light or day as of darkness or night, but they are distributed very differently in different latitudes.

At the equator the days and nights are always twelve hours long; and the farther a point lies from it, the longer are its longest day and its longest night, till, at the poles, the year is made up of but one day and one night, each lasting six months.

* Latin, *equus*, equal; *nox*, *noctis*, night.

† From Greek, *trepo*, to turn—*tropikos*, turning. One of the two circles in the heavens where the sun, as it were, turns, after reaching its greatest declination north and south. A tropic is also one of two circles on the earth corresponding to these. Capricorn is the southern tropic.

LENGTH OF THE SEASONS.

1. THE SEASONS ARE NOT OF EQUAL LENGTH, from the fact that the earth's orbit is not a circle but an ellipse, and that the sun is not in the centre of it, but farther from one end than from the other. Fig. 67 may illustrate this, though not fully, if you imagine the sun moved more than its own breadth to the right. It has been put in the centre, only to make the preceding explanations more easy.

From this position of the sun, when you have thus moved it, you will see that our winter must be the shortest and summer the longest of the four seasons, from the mere fact that the earth has the shortest part of its orbit to travel in the one, and the longest in the other. Autumn and spring, you will notice, are neither so short as winter, nor so long as summer, though autumn is shorter than spring.

The distance to be traversed by the earth in each season is not the only cause, however, of shortness or length; for all the planets, including the earth, move faster the nearer they are to the sun, and more slowly the further they are from it. Hence the earth must move more quickly in the winter season of the northern hemisphere than during the summer. The result is that its—

Winter lasts for	. . . . .	89· days.
Spring „	. . . . .	92·9 „
Summer „	. . . . .	93·6 „
Autumn „	. . . . .	89·7 „

2. Thus winter and autumn vary only seven-tenths of a day—that is 16 hours and 48 minutes in length; but spring is 3 days 4 hours and 48 minutes longer than autumn, and winter is 4 days 14 hours and 24 minutes shorter than summer.

The long way of an ellipse is called its larger diameter, or "major axis," and the earth is nearest to the sun when at one end of this "axis," and farthest from it when at the opposite side. In the first days of July it is farthest away, or in *aphelion**, and it is nearest the sun, or in *perihelion*,† about the 31st of December.

3. Hence the sun is nearer us in the northern hemisphere in winter and autumn than during spring and summer, and it is coldest when the sun is nearest, and warmest when he is farthest off! He is nearer us in winter than in summer! How can this be explained?

4. You must remember that, during winter, the sun rises a very little way into the heavens, and remains but a short time above the horizon. The nights are thus much longer than the days, and the rays of the sun fall much more slantingly than in summer. The nights of course receive no heat, and this makes the season cold; and the slanting rays have to pass through a greater depth of air, which robs them of their heat. In summer

* Greek, *apo*, from; *hēlios*, the sun.
† Greek, *peri*, near; *helios*, the sun.

the long day and the direct rays warm the earth, and it does not get time to cool in the short nights; but it is just the opposite in winter.

In the southern hemisphere autumn and winter are in the same position towards the sun as spring and summer are with us. In summer the earth is nearest the sun there, and farthest off in winter; and hence the heat of the one season is greater than in our hemisphere, and the cold of the other is much more intense. Round the Antarctic Pole, indeed, the cold is so great as to destroy animal and vegetable life, and make the Antarctic continent a desolate wilderness of eternal ice.

5. The seasons, as you know, vary according to the distance of a place from the equator. There are five zones, or great belts, of climate.

First, the TORRID ZONE,* reaching 23° 28′ on each side of the Equator. In this region the sun is vertical twice a year, though it is not so warm, after all, at the equator as at the parts which border the tropics, from causes explained in the Fourth Reader, p. 47, § 4.

Next come the two TEMPERATE ZONES, reaching, on both sides of the Torrid Zone, to the latitude of 66° from the equator. The Tropic of Cancer is the name given to the point in the northern hemisphere where the sun appears to turn from its course northward; the Tropic of Capricorn, on the other hand, is the point where it seems to turn from its southward course—these being the points of its greatest bending, or declination, north and south.

In all the regions of the two Temperate Zones the sun never rises to the zenith, its greatest height being only 66° above the horizon.

There are, lastly, two FRIGID ZONES, round the North and South Poles respectively. The sun never rises higher than 46° in them, and at the Poles themselves, it rises only half that height. For six months in each year it descends to the horizon at the extreme north and south, for six months together, during their winter, and, in contrast with this, keeps above the horizon for six months together in their summer.

THE MOON.

1. The moon is a globe 2,153 miles in diameter, or a little more than a quarter of the diameter of the earth. The total surface of its two hemispheres is thus equal to a little less than a thirteenth of the surface of our globe. Both sides of the moon, together, are thus smaller than the continent of Asia.† Its solid bulk is little more than the forty-ninth part of that of our earth.

2. The moon presents always the same side to us, as you may yourselves see from the permanence of the same marks on its surface, month after month. The reason of its doing so is that it takes exactly the same time, or very nearly so, to revolve once on its own axis, as it

* Latin, *torreo*, to roast, to parch.

† Asia contains 17,000,000 square miles; the two hemispheres of the moon 14,568,000.

takes it to revolve round the earth. We are inside the circle in which it moves, and consequently have only one side turned to us at any time, just as a person in the middle of a circus arena sees only one side of a horse which is running round it, though both sides are presented by turns to a spectator looking from the outside of the circle.

3. The shaded parts of the moon's surface, as seen by us, used to be thought seas, and are still called so in maps of the moon. But they are, in reality, desolate volcanic regions from which rise, in many directions, chains of volcanic mountains, some of them with huge craters. The whole surface of the moon, indeed, is pitted with craters, some small, but others of immense size, one being 114½ miles across, another 56, and another 54.

Fig. 68. Moon in quarter.

4. If you think of the appearance of a thick syrup when boiling slowly, —its whole surface swollen and roughened by the escaping bubbles of steam, you have a not inadequate picture of the appearance of the surface of the moon at large.

5. If we were able to take a journey to the moon, we should find, as we approached it, that the dark parts, which boys shape into the eyes, nose, and mouth of the face in the moon, are vast plains. The part corresponding to the left eye is known as the Sea of Serenity—though there is no sea nor any water at all in the moon; and that part which corresponds

to the right eye is called the Sea of Showers. It is the darkest part of the moon's surface, and is a dead flat for hundreds of miles on all sides. The whole soil is broken up, however, into a honeycomb of craters, and walls of lava, running like threads or rays in all directions, with a solitary peak, like that of Teneriffe, here and there, rising suddenly from the level.

6. As we got still nearer we would see mountain ranges rising in the horizon, some stretching away in nearly straight lines for hundreds of miles, but the greater number forming circular chains. Rays stretch from these rugged circles, which prove, as I have said, to be dykes of trap or lava, bare and barren as when they flowed from the crater. No mould or

Fig. 69. The crater called Gassendi.

verdure has covered them up, as has been the case with the lava of Vesuvius, which is now hidden by vine-clad slopes. Even the lichen does not grow on them, for there is no vegetable or animal life, at least on this side of the moon. We can even see where a more recent dyke has cut through an earlier one, and can thus fix the comparative age of the two.

7. Eratosthenes, to which we may suppose ourselves to have now come, is a circular range of mountains, 37 miles in diameter. The ascent is by a comparatively easy slope. As gravitation is far less on the moon than here, we need no mules to aid us, for we combine the strength of a man

with the weight of a child. We can bound from rock to rock more lightly than the chamois, and can leap across chasms six times broader than we could venture to attempt on earth. Were it not for this convenient lightness, the task would be impracticable. There has been no weathering of the rocks to aid us; they stand in all their rough angles as they first hardened. We at last gain the summit, 7,500 feet above the plain outside. The ascent has been gradual; but on the inner side, as we creep cautiously to it, we find the wall of rock sinking sheer down into an abyss 15,800 feet deep. If we lift a stone—and we easily lift one much larger than we could move on earth—and throw it over the edge, it takes

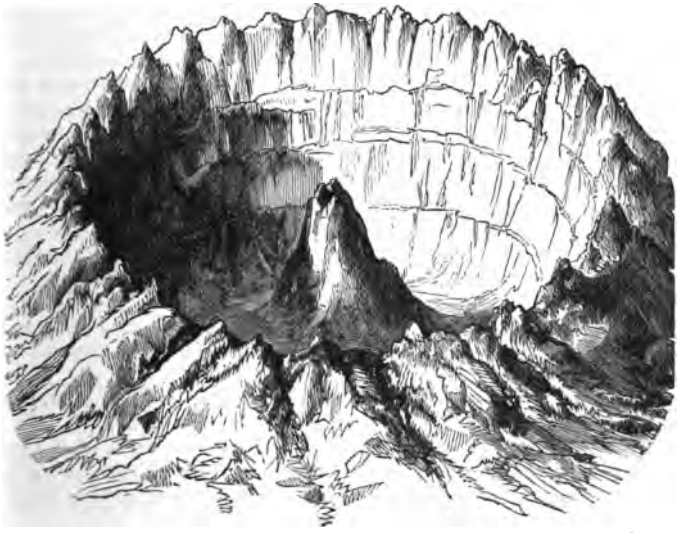


Fig. 70. The Crater Eratosthenes.

a very long time to descend—six times longer than in our own world; and as there is no air, it sends back no reverberation when it strikes the ground. Terraces of ashes, left by successive eruptions, rise in banks round the inner side of this awful chasm, and in the centre of the crater rises a mountain many thousand feet high. If you were to climb to the top of it, you would find yourself surrounded by a wall of rock 15,800 feet feet high, shutting you in, at 18 miles distance, on all sides.

8. Such appearances are the grand feature of the surface of the moon. It is in fact a great extinct volcano, with its soil covered with innumerable craters, as a thick boiling syrup is covered with pits and hollows by the escaping steam. The large craters are studded over with smaller

ones, and these again have others all over them, still less in size. The great plains, some of them 150 miles in diameter, are only the bottom of craters, with mountain walls in most cases girding them round; and in all cases these floors, larger or smaller, are sunk below the level of the surface round, as if they had settled in this way while still soft lava. The peak in the middle of the crater is a characteristic of these moon-volcanoes. The side of the moon turned towards us may, indeed, be regarded as one great sea of extinct volcanoes.

9. I have supposed one of us taking a journey to the moon; but no human being could live to reach it, as it has no atmosphere whatever. Astronomers have tested this in every way, only to find all proofs of the presence of air a-wanting, unless it exist in a state of rarity or lightness 2,000 times greater than the atmosphere of this earth, which is equivalent to saying that it hardly exists at all, even if this conjecture be correct.

10. The want of an atmosphere has the curious effect of making the shadows of all objects on the surface of the moon have the same blackness. Reflections from the various surfaces give different tints of green, brown, and other colours; but the shadows which mottle every part are all alike dark. There is no such softening of the view as the air effects with us; no such cloud tints, or aërial softening of the landscape, as delight us here. Sunshine falls in unmitigated splendour on the wide desolation during a day of two weeks, and darkness, unmitigated in its cold or blackness by the presence of an atmosphere, follows through as long a night.

11. The absence of air in the moon implies absence of water. Atmospheric pressure is needed to retain seas, rivers, and lakes from rising and passing away in vapour; and there is none there. Of course there can be no rain.

Nor can there be any sound; for sound needs air, as a conductor. In Humboldt's words, "the moon is a silent and voiceless desert."

"The moon," he continues, "is nearly such as the earth must have been in its primitive state, before being everywhere covered, owing to the continuous action of tides and currents, with sedimentary beds rich in shells, gravels, and alluvium." But the mountains must be distinguished from the plains in this description. The surface of the plains is so level, that astronomers and physicists are disposed to think that the appearance must be owing to deposits from water—that, in fact, they are old sea-bottoms.

12. But if there be no water on the surface of the moon, what has become of the seas which thus once filled the valleys? Professor Frankland believes that the moon has in past ages passed through geological periods much like those of our own world, and, among others, through a period when ice played a prominent part in its story. Many authorities agree with him more or less fully, and think that there has been a time when huge glaciers filled up the lunar plains, leaving behind them, when they melted, moraines similar to those of our own glaciers. They think

that the *valleys* and *streaks* of the moon's surface have not improbably been caused by glaciers.

13. There is the great difficulty, however, in this theory, that no water exists now in the moon. Where has that of the melted glaciers gone? The idea most generally received is that the mass of the moon was at one time at a very high temperature, and that it cooled so rapidly from its comparative smallness as to cover its surface with seams and fissures, as we now see them, and to make its interior contract into huge cavernous hollows into which the ocean has sunk, beyond the reach even of the fierce sunshine of the lunar day.

14. Profound mathematical study has led some astronomers to think that one half of the moon is heavier than the other, the lighter side being constantly turned towards the earth. If this be so, possibly the ocean which once filled the hollows of this side of it, may have flowed towards the other; and if so, it is possible that the moon may have once had an atmosphere all round it which has vanished to the heavier side, as well. In that case the invisible side would have both air and water, and may, for all we know, have inhabitants. But this theory has been disputed, and it is at best a pleasing conjecture.

15. THE MOON HAS TWO MOTIONS—one of revolution round the earth, the other of rotation on its own axis. These two movements, as has been already stated, occupy the same length of time.

At the time of the *new moon*, our satellite is invisible, from its then presenting to us its dark side, as in the illustration (Fig. 71). The splendour of the sun's light also hides it.

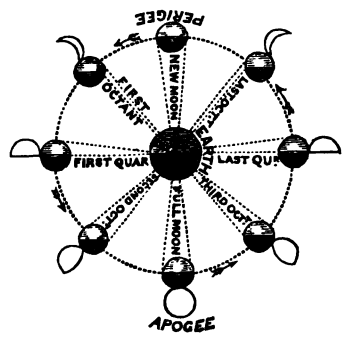


Fig.71.

About four days elapse between the disappearance of the moon in the east, in the morning, and its reappearance, in the evening, in the west, shortly after sunset. The exact beginning of the new moon is in the middle of this interval.

Gradually emerging from the sun's rays we see it first as a slender "silver bow, new hung in heaven," the outside of the bow being turned towards the sun below the horizon. The darkened part of its disk is now very perceptible, giving rise to the old idea that the new moon has the old moon in its arms. But it is only the reflection of light from the earth irradiating the disk faintly.

16. Four days after the new moon our satellite reaches its *first quarter*. It now sets three hours after the sun.

Between the seventh and eighth days the moon fills to a half-circle, at its second octant. It is now partly visible during the day, the daily movement bringing it above the horizon only six hours after sunset. At this time the features of the moon's surface are very clear, and the rugged edges show the outline of its mountain-chains.

Seven days elapse between the *first* quarter and the *full moon*, each night showing a more complete circle. It still rises and sets later and later, always turning the round side of its disk towards the west.

Fifteen days after the new moon, it reaches its *full*. It now rises nearly when the sun sets, and sets at the sun's rising.

From the time of the full moon, the same appearances present themselves in its waning as were seen in its growth, except that the outside of the disk, as it lessens, is turned to the east instead of to the west.

GENERAL ARRANGEMENT OF THE PLANETARY SYSTEM.

Fig. 72.

1. The SUN is the great centre of our Planetary System, which revolves round it in various orbits. It is equal in volume, that is, in cubic contents, to 1,415,225 globes like our earth, and in weight to 354,936. Its light is so intense that a ray no larger than that of a wax candle is yet 15,000 times brighter.

The stupendous forces evolved by it may be conceived from the fact that all the effects it produces on this earth are caused by the two thousand three hundred millionth part of its beams, for this is the amount that falls on the surface of our world—the rest streaming through space on all sides of us.

The mass of the sun is only about 355,000 times that of the earth, though its volume is over 1,400,000 times greater. This is caused by the fact that the substance of the sun weighs, volume for volume, only a little more than a quarter as much as the substance of which our earth is composed. Astronomers have been able to tell the weight of the sun, and have found it to be 2,154,106,580,000,000,000,000,000,000 tons—that is, two thousand one hundred and fifty-four millions, one hundred and six thousand, five hundred and eighty thousands of thousands, of thousands, of thousands of millions of tons!

2. The nearest planet to the sun is MERCURY. It revolves round the sun in 88 of our days, appearing in succession in different phases, like the moon. Its orbit is less circular than that of any of the other larger planets, and hence it is often much nearer the sun than at other times. When nearest, it is, in round numbers, 29 millions of miles from it; but it recedes to the distance of over 44 millions, traversing in each revolution about 210,000,000 of miles, at a speed of nearly 28 miles a second.

When it comes between us and the sun in its circling round it, Mercury is only 49,223,000 miles from us; but when it has reached the opposite extremity of its orbit, beyond the sun, it is 132,000,000 of miles off, and seems only a third as large as when near us.

3. Mercury is nearly six and a half times smaller than the earth, in the extent of its surface, and seventeen planets like it would be needed to make one of the same volume as this. Its diameter is 3,089 miles, or two-fifths of the mean diameter of the earth. The light shines on Mercury, on an average, seven times more brightly than on us, and the heat is as many times greater than ours; but this includes great variations of both light and warmth, for the brightness and heat are ten times greater than on this earth, when Mercury is nearest the sun, and only four and a half times more when it is farthest off, and these changes take place within a year of 88 days. It has been found that it has high mountains, and valleys lying in deep shadow, some of the mountains that cast this appearing to be not less than 11 miles in height. Volcanoes in activity have also been believed to have been seen on it. The seasons, as may be judged from the length of the year and the shape of the orbit, vary greatly in length, and recur at short intervals. Mercury weighs four-fifths as much as our globe. The force of gravity on it is three-fifths of what it is on the earth, and the density of its substance half as much again as that of our earth.

4. VENUS is the planet next after Mercury as we go away from the

sun. It moves round the sun, in a nearly circular orbit, at a distance of 68,000,000 miles at the nearest point, and 69,000,000 at the most distant. The quantity of light and heat it receives is nearly double that which we have, and the shape of its orbit makes the seasons very much alike through its year. Like Mercury, it is sometimes an evening and sometimes a morning star. It has a year of only 225 days. In this time it travels more than 430,000,000 of miles, so that its average speed is 80,000 miles an hour, or 22 miles a second.

5. The greatest distance of Venus from the earth is 166,000,000 miles, but it comes within 24½ millions when nearest. Its diameter is nearly the same as that of our earth, being 8,108 miles; and it turns on its axis in only 35 minutes less than our earth turns on its.

6. Like Mercury and our earth, Venus has mountains, some of which have been estimated at not less than 27 miles in vertical height. An atmosphere seems to wrap it round, and give it twilight and dawn like ours. Its seasons, though of nearly equal length, are varied in a striking way by the fact of the planet's leaning very much over in its revolution in its orbit. This causes its polar regions to suffer alternately a scorching summer and a freezing winter, while at the equator, towards the equinoxes, the heat (unless indeed there be a veil of clouds to temper the rays of the sun) must be double as great as any we endure.

At the poles there seem signs of the existence of snowy regions; but all the facts stated with regard to this planet must be received with caution, as later observations have hardly confirmed the conclusions of earlier observers.

7. The third planet in nearness to the sun is our earth; but as we have already described it very fully in our different READERS, we pass on to the *fourth*—the PLANET MARS.

Mars sheds a red light when seen by the naked eye, but this passes to a yellower tint when it is looked at through a telescope. At its greatest distance from the sun, Mars is 159,000,000 of miles from it, and when nearest it is 132,000,000 off, which shows that its orbit is far from circular. Its distances from our earth, however, vary still more; for while at times it is 256,000,000 of miles from us, it is only 35,000,000 at others. Mars travels along its orbit at about 16 miles a second. Its diameter is a little less than half that of our earth. It revolves on its axis in about 24½ hours.

8. The reddish and bright spots on this planet are generally supposed to be dry land, while dark-bluish spots which appear on it are supposed to be seas. Its red colour has been by some thought to rise from the colour of its rocks, while others have fancied that the vegetation on the planet, if there be any, is red instead of green; and still others have ascribed the colour to the effect of clouds. The seasons in Mars have keen polar winters, which, strange to say, show their snows at the opposite poles in turn. We can watch the fall and thaw of these snows, and tell

what kind of winter there has been on the planet! The Southern Pole, like our own, is the colder and has most ice.

9. Snow implies clouds, and clouds imply an atmosphere, so that Mars must have one; and there are indications that hurricanes and storms rage there as well as here.

The year of Mars is 687 of our days.

10. As we go farther off from the sun, we next come upon a peculiar class of bodies—the Asteroids, or minor planets, sometimes called the telescopic planets. The number now discovered is about one hundred, and it increases every year. They are all situated between Mars and Jupiter, and their orbits are all comparatively close together, often, indeed, interlacing one another.

The zone or belt of the heavens in which these minute planets are found is 248,000,000 of miles in breadth, but throughout this space they are very irregularly distributed, 81 of them being within 50,000,000 miles of Mars, with a distance between them, on an average, of only 990,000 miles.

The middle of this vast zone is 266,000,000 miles from the sun. The length of the year in the asteroids that float through this immense abyss of space varies from 3 years and 3 months to 6 years and 3 months, and many of their orbits are so elliptical that very great differences result in their distance from the sun at different times.

11. VESTA is the brightest of the whole class, and is visible to the naked eye in a very clear sky. It revolves round the sun, at a mean distance of 223,000,000 miles, in 3 years and 8 months. Its size may be judged from its diameter being only about 300 miles. Its surface is only about a ninth part as large as that of Europe.

JUNO is invisible to the naked eye. Its orbit, at its farthest, bears it 300,000,000 of miles away from the sun, but it comes within 180,000,000 at its nearest. Its diameter is only 360 miles, and its year is 4 of our years, and 4 months.

CERES is the fifty-sixth of the group in distance from the sun, and has a reddish colour, with a brightness between that of Juno and Vesta. The year of this little planet is 1,680$\frac{3}{4}$ of our days, or 4 years and 220 days. Its diameter seems to be about 200 miles, or a fortieth of that of our globe.

12. PALLAS, which is the next of the larger asteroids, is 320,000,000 miles away from the sun at its aphelion, but approaches to within 200,000,000 when nearest it. It sheds a beautiful yellow light, and appears as a star of the seventh magnitude when least distant from the earth. The smallness in size of the whole group to which it belongs may be judged from the fact that though Pallas is the largest of them all, its diameter is only about 600 miles. Most of the others are so small that their diameters cannot be measured: indeed many of them have a surface no larger than that of an English county, and a good walker could easily go round them on foot in a day.

The number of asteroids composing this belt of miniature worlds cannot be correctly fixed, but it has been calculated from mathematical reasoning that it must be about 150,000. Possibly this may be too high.

13. JUPITER. The largest of all the planets, Jupiter, next meets us in our progress through the awful spaces of the heavens, but before we reach it we must have passed through nearly 500,000,000 miles from the sun, a distance which is more than five times that of the earth from that orb. In this inconceivable remoteness, which is yet the very threshold, as it were, of the dominions of the Eternal, Jupiter revolves in an orbit which bears it, when at its aphelion, 520,000,000 miles from the central orb, and leads it back, at its near sweep, to within 472,000,000 miles of it. Its course round this immense ellipse requires 12 years, at 30,000 miles an hour, which is eighty times more than the swiftness of a cannon ball.

At its greater distance from the earth, an expanse of 617,000,000 of miles separates us from this planet. In size it is stupendous, for it is 1,400 times larger than our world, which we think so immense. If it were as near us as the moon is, this vast bulk would make a disk 1,200 times as large as that of our moon at its full.

14. Jupiter revolves on itself in about 10 hours, so that its day and night are less than half as long as ours, but as its poles are nearly at right angles to the line of its path, there is little difference of length in day and night over the greater part of its surface throughout its long year. At the poles, alternately, the sun is visible for nearly six years, and hidden for an equal period. Summer reigns through the whole year in the regions near its equator; its temperate zones rejoice in a perpetual spring, and its poles suffer a continual winter. The heat and light received by Jupiter from the sun can be but little at such a distance compared with the amount received by our earth, but it may be that the internal heat of the planet itself, and special characteristics of its clouds or soil may make up the deficiency. The year of Jupiter, as we have seen, is equal to 12 of ours.

15. One of the greatest peculiarities of this planet are the belts or patches that stretch across it—some greyish, others rose coloured—some darker some lighter. There are also spots of various sizes and forms here and there over the huge disk.

These phenomena are regarded as resulting from the movements of great bodies of clouds in the atmosphere of Jupiter, and seem to indicate, by the changes seen in them, the prevalence of light winds, like our trade winds. but blowing in the opposite direction.

Although Jupiter is so much larger than our world it is much lighter, weighing less, bulk for bulk, than a quarter as much as our earth does.

16. Jupiter has four moons which move round it as our moon moves round our earth, but they move more rapidly than our moon. Their distances are far greater, for the most part, from the planet they attend, than our moon is from us, for, while the nearest is 278,000 miles off, the

others are respectively 443,000 707,000, and 1,243,000 miles away. Thus the most remote of the four revolves in an orbit of nearly 2½ millions of miles in diameter! Their size is in proportion to the mighty orb they serve. One is 39 miles more in diameter than our moon, a second 387 miles more; a third 1,426 miles more, and the fourth 909 miles more. The first and second are of a bluish colour; the third is yellow, and the fourth reddish.

17. SATURN. We next come to Saturn, which has eight moons for Jupiter's four, and has besides a system of rings which no other planetary body exhibits. Some of these shine with a golden light, others are transparent. (Fig. 73.)

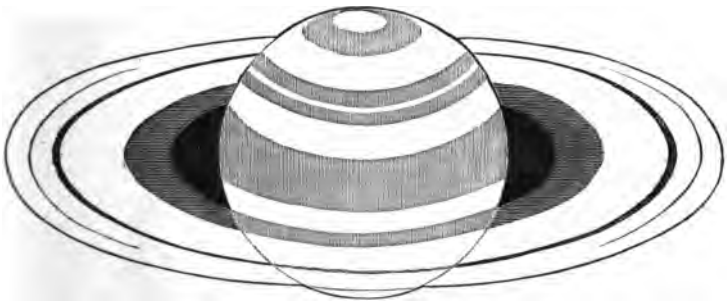


Fig. 73.

When farthest distant from the sun, Saturn is 960,000,000 of miles off in the immensities of space, but the sun is more than 100,000,000 miles nearer one end of the ellipse of its orbit than the other, so that when in perihelion it is about 858,000,000 miles from the central light. To travel this tremendous sweep takes the planet 29 years and 167 days, which is the length of its year. It speeds on in this path at the rate of 22,000 miles an hour. At its farthest from our earth it is 1,057,000,000 miles from us, and at its nearest to us 761,000,000 miles. Its diameter through its equator is 75,100 miles, or 9½ times that of our earth, but it is so flattened at its poles that its diameter through them is only 68,270 miles or 8½ times that of the earth. Thus, to travel round their gigantic world, the inhabitants of Saturn, if there be any, have to go 214,000 miles the one way, or 236,000 the other. Its size, however, is no index to its solidity, for it is composed of matter seven times lighter than our earth. It revolves on its axis in 10½ hours, day and night succeeding each other at an interval of about five hours.

18. Like that of the earth, Saturn's axis shows a striking inclination from the path of its orbit; and hence its seasons vary on different parts of it. Each of them lasts more than seven of our years, and there is

an interval of nearly fifteen years between the autumn and spring equinoxes, and between the summer and winter solstices.

The rings round Saturn may be broadly distinguished into three; an outer one of a grayish tint, 10,000 miles broad. Then, at an interval of 1,750 miles comes the middle one, which is more luminous than the planet itself. Its breadth is 18,300 miles. A third, dark, almost purplish, ring, comes next, joining the middle ring. It is 9,000 miles broad, and its inner edge is 10,150 miles from the body of the planet. The entire breadth of the ring system is thus over 39,000 miles, but its thickness is probably not more than 100 miles.

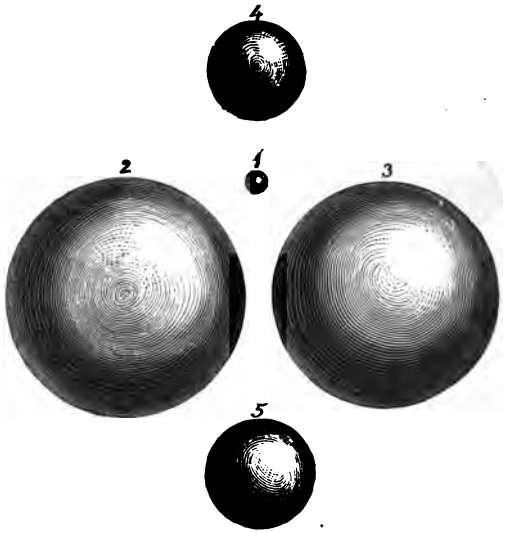


Fig. 74. Relative Sizes of the Larger Planets.
1. The Earth. 2. Jupiter. 3. Saturn. 4. Uranus. 5. Neptune.

This wondrous system of rings is thought by the latest observers to be nothing less than a vast stream of satellites, countless as the sands on the sea shore for multitude, forming a luminous girdle round the planet.

19. The eight moons of Saturn revolve round it at distances ranging from 119,000 to 2,292,000 miles—four of them being nearer to it than our moon is to us, while the farthest off is ten times farther from it than it is from our earth to the moon.

The seasons of Saturn are no less strange than its structure. During fifteen of our years the sun does not leave its north pole, and during these years a night equally long rests on its south pole, after which the

case is reversed for the same period. What must be the cold of regions thus deprived of light and heat so long!

As in the case of Jupiter, the body of the planet is marked by great belts, which are probably the reflection of light from vast masses of cloud.

20. URANUS. The planet Uranus was discovered by Sir William Herschel in 1781, and is still deeper and deeper in the recesses of space than Saturn. Its distance from the sun varies between 1,743,000,000 and 1,913,000,000 miles, and in round numbers it is 2,000,000,000 of miles from our earth!

Uranus is 82 times larger than our earth, and, like Saturn, it has eight moons, the nearest of which goes round it in two days, while the farthest off takes 108. From Uranus the sun looks only the 370th part as large as it does to us, and the heat and light received from it by the planet are in the same proportion. Perhaps the eight moons help to brighten its gloomy nights. It takes 84 years for Uranus to revolve round the sun, so that that is the length of one of its years. The matter of which it is composed is only, bulk for bulk, a sixth part as heavy as the matter of our globe.

21. NEPTUNE. Neptune, the most remote of the known planets of our system, revolves in its orbit round the sun, at a distance from that body of 2,862,000,000! It takes 165 of our years to make one of its, for so long is it in going round its orbit, though it moves onward night and day, for ever, at a speed of 12,400 miles an hour. The light and heat received by it from the sun are little more than the thousandth part of that which is received by us. The density of the matter of Neptune is less than a fourth of that of the matter of our earth. Only one moon has yet been discovered attending it.

NOTE.—The exquisite lines on the next page are a translation from the Spanish of Lopez de Vega (1562-1635), by Henry Richard, third Lord Holland, husband of the celebrated Lady Holland, friend of Sydney Smith, Macaulay, and many other distinguished men. He died in 1840, while a member of Lord Melbourne's Cabinet, as Chancellor of the Duchy of Lancaster, and is buried in Westminster Abbey. Lopez wrote no fewer than 497 plays, twenty-one religious poems, and a great number of minor pieces.

THE STARRY FIRMAMENT.—*Lord Holland.*

I GAZE upon your orbs of light,
The countless stars that gem the sky;
Each in its sphere serenely bright,
Wheeling its course—how silently,
While in the mantle of the night
Earth and its cares and troubles lie.

Temple of light and loveliness,
And throne of grandeur!—can it be
That souls whose kindred loftiness
Nature hath framed to rise to thee
Should pine within this narrow place,
This prison of mortality?

What madness from the path of right
For ever leads our steps astray,
That, reckless of thy pure delight,
We turn from this divine array,
To chase a shade that mocks the sight—
A good that vanisheth away?

Awake, ye mortals! raise your eyes
To these eternal starry spheres!
Look on these glories of the skies,
And see how poor this world appears,
With all its pomps and vanities,
With all its hopes and all its fears.

Who can look forth upon this blaze
Of heavenly lamps, so brightly shining
Through the unbounded void of space,
A hand unseen their course assigning—
All moving with unequal pace,
Yet in harmonious concord joining;

Who sees the silver chariot move,
Of the bright moon, and, gliding slow,
The star whose influence from above
Sheds knowledge on the world below;
And the resplendent queen of love,
All bright and beautifully glow——

Who that hath seen these splendours roll,
And gazed on this majestic scene,
But sigh'd t' escape the world's control,
Spurning its pleasures poor and mean—
To burst the bonds that bind the soul,
And pass the gulf that yawns between?

COMPOSITION.—Write the sentiments and images of these verses in prose.

MY SETTLEMENT IN YORKSHIRE.—*Sydney Smith.*

For notice of Sydney Smith see Notes, p. 119.

A DINER out, a wit, and a popular preacher, I was suddenly caught up by the Archbishop of York, and transported to my living in Yorkshire, where there had not been a resident clergyman for a hundred and fifty years. Fresh from London, not knowing a turnip from a carrot, I was compelled to farm three hundred acres, and without capital to build a parsonage house.

I asked and obtained three years' leave from the Archbishop, in order to effect an exchange, if possible; and fixed myself meantime at a small village two miles from York, in which was a fine old house of the time of Queen Elizabeth, where resided the last of the squires, with his lady, who looked as if she had walked straight out of the Ark, or had been the wife of Enoch. He was a perfect specimen of the Trullibers of old; he smoked, hunted, drank beer at his door with his grooms and dogs, and spelt over the county paper on Sundays.

At first he heard that I was a Jacobin and a dangerous fellow, and turned aside as I passed; but at length, when he found the peace of the village undisturbed, harvests much as usual, Juno and Ponto uninjured, he first bowed, then called, and at last reached such a pitch of confidence, that he used to bring the papers, that I might explain the difficult words to him; actually discovered that I had made a joke, laughed till I thought he would have died of convulsions, and ended by inviting me to see his dogs.

All my efforts for an exchange having failed, I asked and obtained from my friend the Archbishop another year to build in. And I then set my shoulder to the wheel in good earnest, sent for an architect; he produced plans which would have ruined me. I made him my bow: "You build for glory, Sir; I, for use." I returned him his plans, with five and twenty

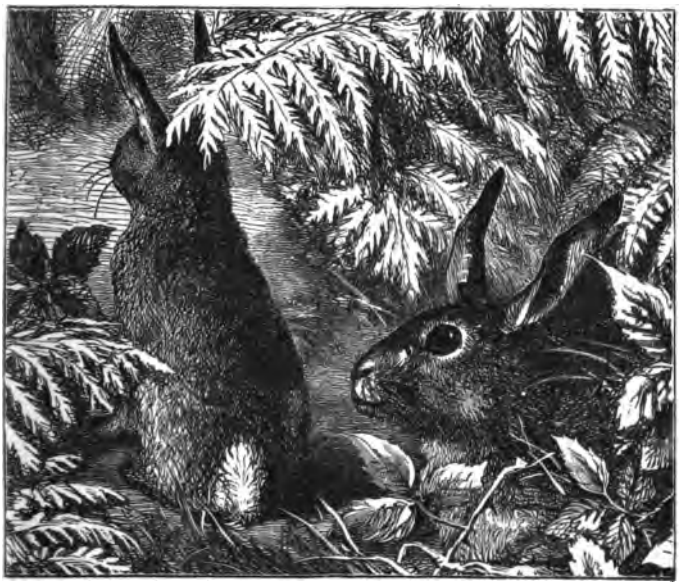
pounds, and sat down in my thinking-chair; and in a few hours Mrs. Sydney and I concocted a plan which has produced what I called the model of parsonage-houses.

I then took to horse, to provide bricks and timber; was advised to make my own bricks of my own clay; of course when the kiln was opened, all bad; mounted my horse again, and in twenty-four hours had bought thousands of bricks and tons of timber. Was advised by neighbouring gentlemen to employ oxen; bought four, Tug and Lug, Haul and Brawl; but Tug and Lug took to fainting, and required buckets of sal-volatile, and Haul and Brawl to lie down in the mud. So I did as I ought to have done at first,—took the advice of a farmer, instead of the gentlemen; sold my oxen, bought a team of horses, and at last, in spite of a frost, which delayed me six weeks, in spite of walls running down with wet, in spite of the advice and remonstrances of friends, in spite of an infant of six months old, who had never been out of the house, I landed my family in my new house nine months after laying the first stone, on the 20th of March; and performed my promise to the letter to the Archbishop, by issuing forth at midnight with a lantern to meet the last cart with the cook and the cat, which had stuck in the mud, and fairly established them before twelve o'clock at night, in the new parsonage house; a feat, taking ignorance, inexperience, and poverty into consideration, requiring, I assure you, no small degree of energy.

It made me a very poor man for years, but I never repented it. I turned school-master, to educate my son, as I could not afford to send him to school. Mrs. Sydney turned school-mistress, to educate my girls, as I could not afford a governess. I turned farmer, as I could not let my land. A man-servant was too expensive, so I caught up a little garden-girl, made like a millstone, christened her Bunch, put a napkin in her hand, and made her my butler. The girls taught her to read, Mrs. Sydney to wait, and I undertook her morals; Bunch became the best butler in the county.

I had little furniture, so I bought a cart-load of deals; took a carpenter (who came to me for parish relief) called Jack Robinson, with a face like a full-moon, into my service; established him in a barn, and said "Jack, furnish my house!" You see the result! At last it was suggested that a carriage was much wanted in the establishment. After diligent search, I discovered in the back settlements of a York coachmaker an ancient green chariot, supposed to have been the earliest inven-

tion of the kind. I brought it home in triumph to my admiring family. Being somewhat dilapidated, the village tailor lined it, the village blacksmith repaired it; nay, but for Mrs. Sydney's earnest entreaties we believe the village painter would have exercised his genius upon the exterior; it escaped this danger, however, and the result was wonderful.



THE BAD SQUIRE.—*Charles Kingsley.*

For notice of Mr. Kingsley, see Fifth Reader, p. 216.

THE merry brown hares came leaping
Over the crest of the hill,
Where the clover and corn lay sleeping
Under the moonlight still.

Leaping late and early,
Till under their bite and their tread,
The swedes and the wheat and the barley
Lay cankered and trampled and dead.

A poacher's widow lay sighing
On the side of the white chalk bank,
Where under the gloomy fir-woods
One spot in the ley throve rank.

She watched a long tuft of clover,
Where rabbit or hare never ran:
For its black sour haulm covered over
The blood of a murdered man.

She thought of the dark plantation,
And the hares, and her husband's blood,
And the voice of her indignation
Rose up to the throne of God.

"I am long past wailing and whining—
I have wept too much in my life:
I've had twenty years of pining
As an English labourer's wife.

'A labourer in Christian England,
Where they cant of a Saviour's name,
And yet waste men's lives like the vermin's
For a few more brace of game.

"There's blood on your new foreign shrubs, squire,
There's blood on your pointer's feet;
There's blood on the game you sell, squire,
And there's blood on the game you eat.

"You made him a poacher yourself, squire,
When you'd give neither work nor meat,
And your barley-fed hares robbed the garden
At our starving children's feet;

"When, packed in one reeking chamber,
Man, maid, mother, and little ones lay;
While the rain pattered in on the rotting bride-bed,
And the walls let in the day;

"When we lay in the burning fever
On the mud of the cold clay floor,
Till you parted us all for three months, squire,
At the dreary workhouse door.

"We quarreled like brutes, and who wonders?
What self-respect could we keep,
Worse housed than your hacks and your pointers,
Worse fed than your hogs and your sheep?

"Our daughters with base-born babies
Have wandered away in their shame;
If your misses had slept, squire, where they did,
Your misses might do the same.

"Can your lady patch hearts that are breaking
With handfuls of coals and rice,
Or by dealing out flannel and sheeting
A little below cost price?

"You may tire of the jail and the workhouse,
And take the allotments and schools,
But you've run up a debt that will never
Be paid us by penny-club rules.

"In the season of shame and sadness,
In the dark and dreary day,
When scrofula, gout, and madness
Are eating your race away;

"When to kennels and liveried varlets
You have cast your daughter's bread,
And, worn out with liquor and harlots,
Your heir, at your feet, lies dead;

"When your youngest, the mealy-mouthed rector,
Lets your soul rot asleep to the grave,
You will find in your God the protector
Of the freeman you fancied your slave."

She looked at the tuft of clover,
And wept till her heart grew light;
And at last, when the passion was over,
Went wandering into the night.

But the merry brown hares came leaping
Over the uplands still,
Where the clover and corn lay sleeping,
On the side of the white chalk hill.

COMPOSITION.—Write the substance of this poem in prose.

THE RIGHT USE OF MONEY.—*John Ruskin.*

For notice of Mr. Ruskin, see p. 102.

You know the lesson that is given us under the form of a story about money. Money was given to the servants to make use of: the unprofitable servant dug in the earth, and hid his Lord's money. Well, we, in our poetical and spiritual application of this, say, that of course money doesn't mean money, it means wit, it means intellect, it means influence in high quarters, it means everything in the world except itself. And do not you see what a pretty and pleasant come-off there is for most of us, in this spiritual application? Of course, if we had wit, we would use it for the good of our fellow-creatures. But we haven't wit. Of course, if we had influence with the bishops, we would use it for the good of the Church; but we haven't any influence with the bishops. Of course, if we had political power, we would use it for the good of the nation; but we have no political power; we have no talents entrusted to *us* of any sort or kind. It is true we have a little money, but the parable can't possibly mean anything so vulgar as money; our money's our own.

I believe, if you think seriously of this matter, you will feel that the first and most literal application is just as necessary a one as the other—that the story does very specially mean what it says—plain money; and that the reason we don't at once believe it does so, is a sort of tacit idea that while thought, wit, and intellect, and all power of birth and position, are indeed *given* to us, and, therefore, to be laid out for the Giver, —our wealth has not been given to us; but we have worked for it, and have a right to spend it as we choose. I think you will find that is the real substance of our understanding in this matter. Beauty, we say, is given by God—it is a talent; strength is given by God—it is a talent; position is given by God—it is a talent; but money is proper wages for our day's work—it is not a talent, it is a due. We may justly spend it on ourselves, if we have worked for it.

And there would be some shadow of excuse for this, were it not that the very power of making the money is itself only one of the applications of that intellect or strength which we confess to be talents. Why is one man richer than another? Because he is more industrious, more persevering, and more sagacious. Well, who made him more persevering or more

sagacious than others? That power of endurance, that quickness of apprehension, that calmness of judgment, which enable him to seize the opportunities that others lose, and persist in the lines of conduct in which others fail—are these not talents?—are they not, in the present state of the world, among the most distinguished and influential of mental gifts? And is it not wonderful, that while we should be utterly ashamed to use a superiority of body, in order to thrust our weaker companions aside from some place of advantage, we unhesitatingly use our superiorities of mind to thrust them back from whatever good that strength of mind can attain. You would be indignant if you saw a strong man walk into a theatre or a lecture-room, and calmly choosing the best place, take his feeble neighbour by the shoulder, and turn him out of it into the back seats, or the street. You would be equally indignant if you saw a stout fellow thrust himself up to a table where some hungry children were being fed, and reach his arm over their heads and take their bread from them. But you are not the least indignant if, when a man has stoutness of thought and swiftness of capacity, and, instead of being long-armed only, has the much greater gift of being long-headed—you think it perfectly just that he should use his intellect to take the bread out of the mouths of all the other men in the town who are of the same trade with him; or use his breadth and sweep of sight to gather some branch of the commerce of the country into one great cobweb, of which he is himself to be the central spider, making every thread vibrate with the points of his claws, and commanding every avenue with the facets of his eyes. You see no injustice in this.

But there is injustice; and, let us trust, one of which honourable men will at no very distant period disdain to be guilty. In some degree, however, it is indeed not unjust; in some degree it is necessary and intended. It is assuredly just that idleness should be surpassed by energy; that the widest influence should be possessed by those who are best able to wield it; and that a wise man, at the end of his career, should be better off than a fool. But for that reason, is the fool to be wretched, utterly crushed down, and left in all the suffering which his conduct and capacity naturally inflict?—Not so. What do you suppose fools were made for? That you might tread upon them, and starve them, and get the better of them in every possible way? By no means. They were made that wise people might take care of them. That

is the true and plain fact concerning the relations of every strong and wise man to the world about him. He has his strength given him not that he may crush the weak, but that he may support and guide them. In his own household he is to be the guide and the support of his children; out of his household he is still to be the father, that is, the guide and support of the weak and the poor; not merely of the meritoriously weak and the innocently poor, but of the guiltily and punishably poor; of the men who ought to have known better—of the poor who ought to be ashamed of themselves.

It is nothing to give pension and cottage to the widow who has lost her son; it is nothing to give food and medicine to the workman who has broken his arm, or the decrepit woman wasting in sickness. But it is something to use your time and strength to war with the waywardness and thoughtlessness of mankind; to keep the erring workman in your service till you have made him an unerring one; and to direct your fellow-merchant to the opportunity which his dullness would have lost. This is much; but it is yet more, when you have fully achieved the superiority which is due to you, and acquired the wealth which is the fitting reward of your sagacity, if you solemnly accept the responsibility of it, as it is the helm and guide of labour far and near. For you who have it in your hands, are in reality the pilots of the power and effort of the State. It is entrusted to you as an authority to be used for good or evil, just as completely as kingly authority was ever given to a prince, or military command to a captain. And, according to the quantity of it that you have in your hands, you are the arbiters of the will and work of England; and the whole issue, whether the work of the State shall suffice for the State or not, depends upon you. You may stretch out your sceptre over the heads of the English labourers, and say to them, as they stoop to its waving, "Subdue this obstacle that has baffled our fathers, put away this plague that consumes our children; water these dry places, plough these desert ones, carry this food to those who are in hunger; carry this light to those who are in darkness; carry this life to those who are in death;" or on the other side you may say to her labourers: "Here am I; this power is in my hand; come, build a mound here for me to be throned upon, high and wide; come, make crowns for my head, that men may see them shine from far away; come, weave tapestries for my feet, that I may tread softly on the silk and purple; come, dance before me, that I

may be gay; and sing sweetly to me, that I may slumber; so shall I live in joy, and die in honour." And better than such an honourable death, it were that the day had perished wherein we were born, and the night in which it was said there is a child conceived.

I trust, that in a little while, there will be few of our rich men who, through carelessness or covetousness, thus forfeit the glorious office which is intended for their hands. I said, just now, that wealth ill-used, was the net of the spider, entangling and destroying: but wealth well used, is as the net of the sacred fisher, who gathers souls of men out of the deep. A time will come—I do not think even now it is far from us—when this golden net of the world's wealth will be spread abroad as the flaming meshes of morning cloud are over the sky; bearing with them the joy of light and the dew of the morning, as well as the summons to honourable and peaceful toil. What less can we hope from your wealth than this, rich men of England, when once you feel fully how, by the strength of your possessions—not, observe, by the exhaustion, but by the administration of them and the power—you can direct the acts, —command the energies—inform the ignorance—prolong the existence, of the whole human race; and how, even of worldly wisdom, which man employs faithfully—it is true, not only that her ways are pleasantness, but that her paths are peace; and that, for all the children of men, as well as for those to whom she is given, Length of days are in her right hand, as in her left hand Riches and Honour?

LIFE.—*Dr. Cunningham Geikie.*

Author of "Life, a Book for Young Men," &c.

BERNARD used to say that he could not look at the sun shining in his strength, or at the moon in her brightness, or at the white flock of stars, without thinking of that hour when he would weep that he should see their face no more, because the time had come when they must die, while he lived on, for ever. The multitudinous waves rise and sink ceaselessly, for ever, over the illimitable waters that round our life; each wave itself an eternity! The life of one soul outruns the aggregate of the lives of all men from the beginning of time to the last trumpet; and time passes so quickly. It fades away

round us, moment by moment, like a dream, and reveals the changeless infinite beyond. Each instant is eternity till it comes, and the moment it is gone is eternity again. For what is our life but the thin spray of a broken wave dashed up from the deep to glitter for an instant in the light, and then fall back into the abyss? Or what is time itself but a thread of light in the infinite darkness before and after, with life for a mote, seen for a moment as it floats across it.

"Like as the damask rose you see,
Or like the blossom on the tree,
Or like the dainty flower of May,
Or like the morning to the day,
Or like the sun or like the shade,
Or like the gourd which Jonas had,
E'en such is man: whose thread is spun
Drawn out, and cut, and so is done.—
The rose withers, the blossom blasteth,
The flower fades, the morning hasteth,
The sun sets, the shadow flies,
The gourd consumes,—and man—he dies!

Like to the grass that's newly sprung,
Or like a tale that's new begun,
Or like the bird that's here to-day,
Or like the pearled dew of May,
Or like an hour, or like a span,
Or like the singing of a swan,
E'en such is man; who lives by breath,
Is here, now there, in life and death.—
The grass withers, the tale is ended,
The bird is flown, the dew ascended,
The hour is short, the span not long,
The swan's near death; man's life is done." *

It is hard to believe that we have lived as long as we have. The child thinks the old man's life an age; but the old man looks back on it as a hand-breadth. Yet we cannot bring ourselves to realise that it will soon be over. The moment given us is to last for ever. But it was the same with the generations that have lived before us. Yet where are the busy crowds that filled the world before we were born? They had their days filled with as many cares and occupations as ours have. Go back no farther than the beginning of this century. Where are our countrymen and countrywomen of that day? Their life was warm in them once. Some were caring for their young families then as some are now; some

* S. Wastell, 1502.

marrying; some following the past generation to the grave. The ploughman whistled as he cut the furrow; the sailor heaved the anchor, or dropped it, to his rough "Yo ho!" the smith was busy at his forge, and wiped his brows, as he rested the hammer on his anvil and gossiped with the neighbours on the latest news. They met at markets, and churches, and on the Exchange. The fairs had their buyers and sellers, and their gaping crowds to see the clowns and the giants. Men were of all kinds then as now. Here, you had an honest fellow that would put himself about to serve you: yonder, one who had no thought but to cozen you. They were feasting in the great man's house, and watering a crust with tears in many a poor widow's garret; all that the poor orphans had among them. Where are they all now? Not one of them, or hardly one, but is a pale ghost, gone for ever from the light of the sun! Their memory has long ago faded from among men, and no one knows that ever they existed. They are faded and gone like the flowers that once pleased them in the sweet summer fields and gardens of Long-Ago.

NOTE.—*Bernard.*—Abbot of Clairvaux, in what is now the Department of the Jura, France. He was a man of great natural genius; a true ascetic in an age of corruption, and did much in his day to keep alive the religious life of Western Europe. Born 1091, died 1153.

UNFADING BEAUTY.—*Thomas Carew*, 1640.

Born in Gloucestershire, 1589; died, 1639. He was a gentleman of the Privy Chamber, and "Taster-in-general" to Charles I.

HE that loves a rosy cheek,
  Or a coral lip admires,
Or from star-like eyes doth seek
  Fuel to maintain his fires;
    As old Time makes these decay,
    So his flames must melt away.

But a smooth and steadfast mind,
  Gentle thoughts and calm desires,
Hearts with equal love combined,
  Kindle never-dying fires:
    Where these are not, I despise
    Lovely cheeks, or lips, or eyes.

HADRIAN.—*Dean Merivale and Edinburgh Review.*

Charles Merivale, D.D., Dean of Ely, born in 1808. Author of a fine translation of the "Iliad" and of the "History of the Romans under the Empire," from which this extract is taken. It is our best history of the period. The *Edinburgh Review* was begun in 1802, by Francis Jeffrey, Sydney Smith, Henry Brougham, and other Whigs, and has been the organ of that party ever since.

On the whole, I am disposed to regard the reign of Hadrian as the best of the imperial series, marked by endeavours at reform and improvement in every department of administration in all quarters of the empire. The character of the ruler was mild and considerate, far-seeing and widely observant, while the ebullitions of passion which clouded his closing career were confined at least to the small circle of his connections and associates. His defects and vices were those of his time, and he was, indeed, altogether the fullest representative of his time, the complete and crowning product, as far as we can judge, of the crowning age of Roman civilisation.

His person and countenance, which we have unusual means of figuring to ourselves from the number of his busts, statues, and models, corresponded well with his character. With Hadrian the Roman type of features begins to disappear. Hadrian is neither Greek nor Roman; he is of no race nor country; but rather what we might deem the final result of a blending of many breeds and the purest elements. He reminds us more than any Roman before him, of what we proudly style the thorough English gentleman, with shapely trunk and limbs and well-set head, no prominent features, no salient expression, but a general air of refinement and blood, combined with spirit and intelligence.

His face and figure are both eminently handsome, though inclining to breadth and bulk. His countenance expresses ability rather than genius, lively rather than deep feelings, wide and general sympathies rather than concentrated thought or fixed enthusiasm. The sensual predominates in him over the ideal, the flesh over the spirit; he is an administrator rather than a statesman, a man of taste rather than a philosopher. A casual observer would, perhaps, hardly notice that Hadrian is the first of the Romans whose bust is distinguished with a beard. Hitherto, though the arrangement of the hair varies from one generation to another, or follows the personal taste of the wearer, every public man at Rome

scrupulously shaved his cheeks, lip, and chin. But Hadrian Atticised as well as philosophised, and he might reasonably incline to cherish the natural appendage which betokened both the Grecian and the sophist. Some, indeed, whispered that he suffered hair to grow on his chin to conceal a physical blemish; but this explanation seems far-fetched, and the fashion set by Hadrian, and adopted generally by his successors, seems rather to indicate a change in the feelings of the people, and their inclination to disregard the special distinction of race in deference to views more enlightened and genial.—*Merivale.*

For the triumphal laurel Hadrian either had no ambition, or prudently checked it. He saw that to retain provinces was a no less difficult task than to win them. His association with Trajan in his campaigns had doubtless opened his eyes to the barren nature and precarious tenure of conquests east of the Euphrates. There was no soil beyond that river in which Roman institutions could take root, while the expenses of maintaining them would have been utterly exhausting. Every prefect or proconsul whom he placed there might prove a formidable rival. On all these grounds, therefore, he discreetly abandoned Armenia, Mesopotamia, and Assyria, and retained only the district of Petra, a region fortified by nature and useful to Rome as an outpost for its eastern trade. The Flavian dynasty had done little for the provinces beyond extracting from them taxes and customs. Trajan's wars had confined his attention to the northern and eastern frontier.

The vast estate of the Cæsar demanded a strict and a personal survey, and Hadrian's inquisitive temper and desire of knowledge rendered the necessary task pleasant. To him, as well as to Trajan, Rome was an irksome residence. His birth was not illustrious. He had no waxen images in his halls; and he brooked not even the suspicion that the men who cried, 'Hail, Cæsar, Imperator,' in their hearts looked down upon him as a 'new man,' for whom a tribuneship of the commons were preferment enough. The senate, on its part, so far as it was still Roman in feeling, beheld complacently, perhaps contemptuously, its *princeps* marching bare-headed over the snow of Germany and the sands of Libya; and felt relieved by the absence of a chairman naturally jealous and occasionally stern.—*Edinburgh Review.*

Notes.—*Hadrian.*—One of the greatest of the Roman emperors, of whom he was the fourteenth. He was born at Rome A.D. 76. His family, originally of Hadria, in Picenum, an Italian state, on the Adriatic, had settled in Spain about

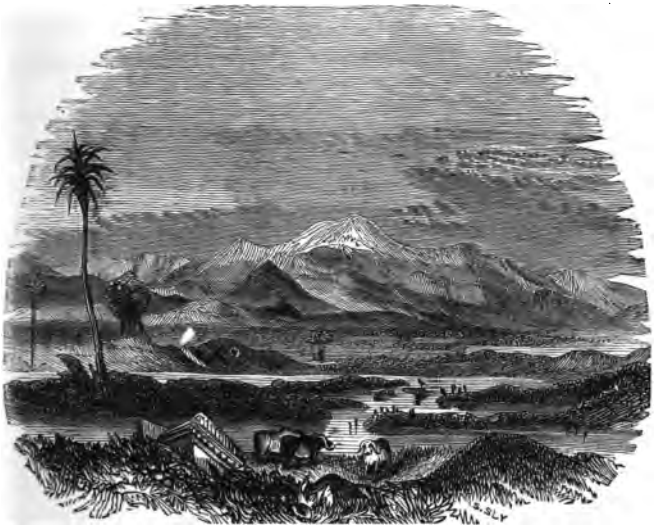
B.C. 200. His father was related by marriage to the Emperor Trajan, who was a Spanish Roman, having been born at Seville. Being a senator, Hadrian's father came to live in Rome. Having left his son an orphan at ten, Trajan became one of the boy's guardians, and appointed him to the empire at his own death, in 117. He was a great and a good man. *Trajan's campaigns.*—Trajan, who reigned from A.D. 98 to 117, had wars with the Dacians, whose name was afterwards given to a Roman province, which comprehended most of Bessarabia, Moldavia, Wallachia, and Transylvania. Its southern boundary was the Danube; its eastern, the Black Sea. He warred also with the Sarmatians, who were the tribes inhabiting what is now Russia; and with the Parthians, whose kingdom lay between the Caspian Sea and the Persian Gulf, stretching westward, at one time, to the borders of Syria. *Armenia, &c.*—Provinces of the Parthian empire, conquered by Trajan, but afterwards abandoned by him. *Petra.*—The capital of the ancient Edom. South of Palestine. It was built in a narrow defile in the hills, and many of its temples, &c., were cut out from the living rock. *Flavian dynasty.*—The Emperors Vespasian, Titus, and Domitian. They reigned from A.D. 69 to 96. *Waxen Images.*—The Roman nobility had the right to have wax images of themselves—painted masks of wax—placed in their halls. These accumulated with each new generation, and their number was the sign of longer or shorter illustrious descent. They were, in fact, to the Roman nobility, what family portraits are to our nobility. *The Senate.*—The body in whom, under the emperors, the powers of the state were reposed. Under Augustus, they were six hundred in number. The dignity of senator was conferred by the emperors, who were *presidents* (principes) of the senate. It had no real power, except as the emperors permitted. *Marching bareheaded.* — Hadrian was always bareheaded, and marched thus through every province of the empire. So Gibbon tells us. The empire then stretched from the Atlantic to the Euphrates, and from the Forth to the Great Sahara; it was, in fact, almost commensurate with the then known world.

ULYSSES.—*Tennyson.*

Homer.

It little profits that an idle king,
By this still hearth, among these barren crags,
Match'd with an aged wife, I mete and dole
Unequal laws unto a savage race,
That hoard, and sleep, and feed, and know not me.
I cannot rest from travel: I will drink
Life to the lees: all times I have enjoy'd
Greatly, have suffer'd greatly, both with those
That loved me, and alone; on shore, and when
Thro' scudding drifts the rainy Hyades
Vext the dim sea: I am become a name;
For always roaming with a hungry heart
Much have I seen and known; cities of men

And manners, climates, councils, governments,
Myself not least, but honour'd of them all;
And drunk delight of battle with my peers,
Far on the ringing plains of windy Troy.
I am a part of all that I have met;
Yet all experience is an arch wherethro'
Gleams that untravell'd world, whose margin fades
For ever and for ever when I move.
How dull it is to pause, to make an end,



Plains of Troy.

To rust unburnish'd, not to shine in use!
As tho' to breathe were life. Life piled on life
Were all too little, and of one to me
Little remains: but every hour is saved
From that eternal silence, something more,
A bringer of new things; and vile it were
For some three suns to store and hoard myself,
And this gray spirit yearning in desire
To follow knowledge, like a sinking star,
Beyond the utmost bound of human thought.

This is my son, mine own Telemachus,
To whom I leave the sceptre and the isle—
Well-loved of me, discerning to fulfil
This labour, by slow prudence to make mild
A rugged people, and thro' soft degrees
Subdue them to the useful and the good.
Most blameless is he, centred in the sphere
Of common duties, decent not to fail
In offices of tenderness, and pay
Meet adoration to my household gods,
When I am gone. He works his work, I mine.
There lies the port: the vessel puffs her sail:
There gloom the dark broad seas. My mariners,
Souls that have toil'd, and wrought, and thought with me—
That ever with a frolic welcome took
The thunder and the sunshine, and opposed
Free hearts, free foreheads—you and I are old;
Old age hath yet his honour and his toil;
Death closes all: but something ere the end,
Some work of noble note, may yet be done,
Not unbecoming men that strove with Gods.
The lights begin to twinkle from the rocks:
The long day wanes: the slow moon climbs: the deep
Moans round with many voices. Come, my friends,
'Tis not too late to seek a newer world.
Push off, and sitting well in order smite
The sounding furrows; for my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until I die.
It may be that the gulfs will wash us down:
It may be we shall touch the Happy Isles,
And see the great Achilles, whom we knew.
Tho' much is taken, much abides; and tho'
We are not now that strength which in old days
Moved earth and heaven; that which we are, we are;
One equal temper of heroic hearts,
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield.

NOTES.—Ulysses was king of Ithaca, one of the Ionian Islands, in the Gulf of Patras, between the west coast of Greece and Cephalonia. It is twelve miles long by four broad. He is the hero of Homer's "Odyssey," which is the story of his wanderings. The poet makes him come back, after all his perils, to Ithaca, and leaves him there, with a hint, however, that he left it once more. This hint Tennyson makes the foundation of these fine lines. They are his, not Homer's. The Italian poets have, in the same way, added an imaginary continuation to the hero's adventures. *Aged wife.*—Penelope. Ulysses had been twenty years

away. *Barren crags.*—All the Greek islands look barren, except in the valleys. *Know not me.*—From his long absence. *Rainy Hyades.*—A constellation the rising and setting of which was thought by the ancients to be attended with much rain. *Troy, The Plains of.*—At the mouth of the Dardanelles. At present a great expanse of barren flat. "Only fit," says Byron, "for first-rate snipe-shooting." *Telemachus.*—Son of Ulysses. Tennyson makes Ulysses resign his sceptre to him, as his successor. *Happy Isles.*—Fabled islands in the Atlantic, where the spirits of such heroes as Achilles might be found. *Achilles.*—A hero of the "Iliad," and the bravest of all the Greeks in the siege of Troy, at which he was slain by an arrow, which pierced his only vulnerable part—the heel. Of course, all this is only poetry, not history.

TABLE OF DIVISIONS OF THE ARYAN LANGUAGES.

See also p. 51.

THE English language—the offspring of the Anglo-Saxon—is one of the Low-German dialects which make up the German class of the Teutonic branch of the Indo-European or Aryan languages.

The Aryan languages may be divided into six principal branches:

I. INDIAN. II. PERSIC. III. CELTIC. IV. GRÆCO-LATIN. V. TEUTONIC. VI. SLAVONIC.

The TEUTONIC branch is divided into two classes, the GERMAN and SCANDINAVIAN:

- TEUTONIC
  - I. German
    1. Mœso-Gothic, preserved in Ulphilas's translation of the Gospels.
    2. Low-German.
       - I. Anglo-Saxon. English.
       - II. Old Saxon.
       - III. Frisian.
       - IV. Dutch.
       - V. Flemish.
    3. High-German.
       - I. Old High-German.
       - II. Middle High-German.
       - III. New High-German.
  - II. Scandinavian
    1. Old Scandinavian.
       - I. Icelandic.
       - II. Ferroic.
    2. Modern Scandinavian.
       - I. Danish.
       - II. Swedish.
       - III. Norwegian.

The Celtic branch is divided into:

1. Gadhelic or Erse.
   - I. Irish.
   - II. Scottish Gaelic.
   - III. Manx.
2. Cymric.
   - I. Welsh.
   - II. Cornish (now extinct).
   - III. Armorican.

NOTES.—The name *Aryan* seems to come from the Sanskrit *arya*, excelling. Some, however, think it comes from the word *ar*, which is the root of *aro* (Latin), to plough, as pointing out a race of tillers of the soil in distinction from wandering tribes. *Mœso-Gothic.*—The Gothic spoken by the Goths in the Province of Mœsia, now Bulgaria. *Ulphilas.*—Bishop of the Mœso-Goths. Born A.D. 318, died 388. *Frisian.*—Spoken in East and West Friesland, along the coast of the North Sea, from the Zuyder Zee to the mouth of the Weser. *Ferroic.*—Spoken in the Faroe Islands. *Armorican.*—Language of Brittany in France. *Armorica* was its ancient name, from *ar*, on; *mor*, the sea. *Manx.*—The language of the Isle of Man.

THE PRIMITIVE ARYAN RACES.—*Professor Wilkins.*

The following sketch of the primitive Aryan races is drawn from the study of the Aryan words still surviving in European languages, and is a striking example of the value of the intelligent study of language. Mr. Wilkins is Professor of Latin at the Owens College, Manchester, and editor of the Latin Course in the Public School Series.

ARYAN is the name given to those early tribes who originally inhabited portions of the plateau of Central Asia, and became the progenitors of the races mentioned in the preceding table. This able sketch of Professor Wilkins is, in fact, a picture of the life and manners of our earliest known forefathers, while they were as yet settled in their native country in Central Asia. How far back this sketch carries us it is impossible to say, for even the ancient Greeks were Aryans. Bactria, now Afghanistan, is supposed by some eminent scholars to have been the earliest seat of the race, but the whole region of Central and Northern Persia is assigned as its cradle by an authority so distinguished as Professor Kiepert, of Berlin.

FAR, far away, in the mists of a distant past, at a time and place of which we have only faint and uncertain indications, we can catch clear glimpses of the primitive "Aryan" people. The state of normal vagrancy, if ever they fell into it, is over for them now; they are dwelling in permanent wooden houses, gathered into separate villages, or even towns. The basis of the national life is the family in its purest form: polygamy and the slavery of women are unknown; the husband is acknowledged as lord and master, but the wife is no less lady and mistress; and the abundant names for various kinsfolk bear witness to the strength of the family tie, that stretches far before it is broken. The father's strong protecting arm, the mother's watchful care, are brought out in the names that they severally received. The word for "son" probably means nothing more than "child;" the word for daughter, however, seems to bear the germ of a pretty little idyll embedded in it. It can hardly be anything originally but "milk-maid;" and thus gives us a glance at once into the simple manners and the pastoral condition of those early times. The brother is the "sustainer" of his sister, while she seems to be denoted as "his very own,"

or it may be, perhaps, "his delight." The son's wife enters entirely into the family of the husband, and his parents become to her "her own lord and lady;" on the other hand, the absence of any common Indo-European term for son-in-law shows that a marriage-alliance did not necessarily bring the two households concerned into any very close relations. Another "Indo-Germanic idyll" is revealed to us in the name given to the husband's brothers (especially the younger ones), the "playmates" of the bride. In the house, the father was apparently the absolute monarch; and he represented it in all its relations to the state, both civil and political. A community consisting of several families formed the clan, which had its own chief. Besides this "lord of the clan" we find another appellation occurring, that of "ruler;" but language does not enable us to determine precisely the relation in which these stood each to the other. It is a natural conjecture, however, that the "ruler" was the chief of the nation, and that the "lords of the clans" were subordinate nobles.

The land is the common possession of the township, if we may judge from the survival of this usage, in all Aryan communities; but it can hardly be said to be tilled as yet, though the beginnings of agriculture are visible. It is possible that the wild barley or spelt was gathered and roughly bruised for food; but nothing more than this can be seen indicated in the evidence of language. On the other hand, the tending of cattle was the main occupation of those early times. One name whereby they were known, "the tethered," shows that they were domesticated; other names are plainly mimetic, but some point to the fact that the value of cattle lay mainly in the food they furnished; and the way in which the various appellations enter into derivatives or metaphors belonging to the earliest stages of the kindred languages is a proof of the importance attached to them as an article of property. The horse, the sheep, the goat, and the pig, are already familiar, and stalls are built for their protection. The first of these is used for draught, and waggons of various kinds are employed; but riding is apparently unknown. Sheep are kept chiefly for the sake of their wool, which is used for clothing, and possibly derived their usual name from this.

The dog is trained to aid the shepherd; the yard is filled with geese, the "buzzing" bees are robbed of their honey, whence the favourite drink is made. The "thievish" mouse is found in the homestead, and a glorious time he must have

had of it there, for cats are still unknown. We can even see how our forefathers were plagued with adders, caterpillars, and ants, and other insects whose attentions are more persistent and even less agreeable. Their eyes are quick to note the various forms of nature; birds of many kinds bear names, for the most part strikingly appropriate, and in the vegetable world the pine, the beech, the birch, the hazel, and possibly the poplar, with the cabbage and the cucumber, have left their marks on language. Milk and flesh seem to serve as the main articles of food; but the former is prepared in various ways; the latter is never eaten raw, but is sodden or broiled on coals. Of the wild fruit and berries, to which *à priori* theorists have assigned so large a part in the sustenance of early man, the comparative study of language tells us nothing. Clothing is furnished by the flocks, whose wool is spun and roughly woven; perhaps, too, hides are sometimes dressed and worn. All go bare-headed, so far as we can now discover, but their feet are guarded by a kind of buskin, and ornaments are not wanting, of which the collar or necklace appears to be the favourite. Three metals only are known—"the bright yellow" (gold), "the white" (silver), and "the red" (copper), denoted collectively by a name which was afterwards specialised differently by different nations. Of working in stone we find no trace, but the craft of the carpenter is highly esteemed, and seems to attain to no mean completeness. With his bronze tools, among which the axe is prominent, he builds houses of timber and fashions doors for them; constructs waggons with wheels and axles, and even frames some kind of rough canoe, to which, however, masts, sails, and rudders are wanting. The potter too plies his art, and furnishes pots and beakers. The beginnings of art are faintly adumbrated by the words for painting and adorning.

War is of course not unknown, but from the evidence of language alone we cannot determine the enemies with whom it was waged; the earliest remains of Aryan literature incline us to find them in the hordes of wild Turanian horsemen, by whom our forefathers appeared to have been surrounded on every side, and who were known by them as the "evilly-disposed" or the "ravaging." We cannot find any traces of defensive armour; but swords of bronze, bows strung with the sinews of animals, and possibly lances, served as weapons of offence. The healing art is already practised, but it seems to have been almost wholly confined to the cure of wounds, and to have consisted largely of religious incantations.

Roads were opened, at least in some rude fashion, and barter was carried on; but, as might have been expected, we find no trace of money. The recognised standard of value, as natural with a pastoral people, was cattle, and this method of estimation has left its traces in almost every Indo-European language. Thus "rupee," which derives its modern meaning from the wider sense of "bullion" is derived from *rûpa*, "cattle," and numerous compound words in Sanskrit referring to wealth or poverty, contain the root *gav* (our *cow*). In Homer, as in the early times of the Romans, in the Brehon laws of Ireland, and the Vendidad of the ancient Persians, value is estimated in cattle. The Latin *pecunia* and *peculium* are familiar relics of the same condition, and in the Gothic Scriptures of Ulfilas, *faihu* (properly "cattle") is always used for wealth or money. From this we have our own word "fee," with the early English "maiden-fee" for dowry.

It is certain that the decimal system, based as it is on the natural fashion of reckoning on the fingers, was already in use, and the numerals that we employ to-day, so far as a hundred, were, with hardly an exception, already familiar. The year was apparently divided into only three seasons—the spring, the summer, and the winter; the moon, which was especially named "the measurer," by its changes marked the months, denoted originally only as moons. It is perhaps a sign of the impression which the gloomy period of the year made upon the quick sensibilities of a people, living much in the open air, that time seems generally to have been counted by winters.

Of the amusements of our Indo-European forefathers it is not possible now to form any definite conception from language; but as the Rigvêda and Homer agree in their references to the taste for gambling, it is at least possible that games of chance were familiar. There are indications of the use of the dance and song, either in the worship of the gods or in commemoration of the deeds of valiant heroes, and some signs that the bard already held a position of exalted honour.

The ideas of morality which are current are still simple, concrete, and almost sensuous. *Honour* derives its name from the shout of applause that sets it forth; *fame* is the audible utterance of approval; the *friend* is "one who follows steadily;" *sin* is "a missing of the path," "a stumbling," or "defilement;" *truth* and *goodness* are described emphatically as "things which *are*." Law is recognised as "that which is ruled by the chieftain," and transgression brings with it a

penalty whose name reveals to us that it consisted most commonly of a fine.

The notions of the unseen world bear the same child-like stamp. The relations that hold in the families of mortal men are freely transferred to the realms of the deathless spirits, who are regarded as pure and mighty beings. Just as the earthly father rules in a household which forms in the eyes of the outside world a unity of which he is the sole representative, so the divinity of the various unseen powers is embodied and shadowed forth to men by the all-embracing Heaven, the glorious Father of the Sky. The light of day is the favourite emblem of Him who is at other times regarded as the quickening power of the universe and the giver of all its gifts. It is difficult for us to determine how far the deified natural phenomena, the sun, the moon, the stars, the clouds, the rosy blush of dawn, are regarded as the children of the One Supreme, and how far they appear as simple forms of his self-manifestation. At any rate language can help us but little, and when we fall back upon the earliest Aryan literature it reveals to us just that condition of flux and vagueness which seems so natural in primitive times, a consciousness of a Divine power manifested in every natural force, which ultimately, by the tendencies of languages, passed into a belief in as many individual deities as there were distinguishable features in nature. It is probable that among the first of these to receive an independent existence was the Bride of Heaven, sometimes taking form as the shadowy night that divides with him the rule of the world, sometimes rather as the Mother Earth.

Over against the bright and heavenly company of the children of the Divine power we may see dimly flitting the shadows of treacherous spirits that haunt the darkness. It may be true, as Professor Max Müller says, that "the Aryan nations had no Devil" in pre-Christian times; but at least they had many devils, and to them they ascribed power of bewitching by evil arts. When these assume a bodily form, it is that of the throttling snake, the emblem and incarnation of the demon of night. But all the gloomier beings come but little into prominence. Our Aryan forefathers, like the gods whom they worshipped, are children of the light, and in it they love to dwell.

But here the curtain falls. When it rises again the scene is changed, and we find ourselves in a different land and time. Language of course can tell us nothing of this, and we are in a region far beyond the reach of any historical record or

trustworthy tradition. A possible conjecture is that religious differences sprung up such as those which have been supposed to have occasioned the further separation of the Persians from the Indians. Perhaps a more probable guess is that an irruption of the wild Turanian hordes split them asunder like a wedge, and that, under the impulse of this invasion, one-half went southwards to the Persian hills to fight their way eastwards for many generations down the valley of the Indus to the wealth of Hindostan, while the other half took a united westward course over the plains of Media, to the heart of Europe. This is, however, but guesswork. All that language tells us unmistakably is, that the severance was effected, and that, wherever the earliest home may have been, or however long our ancestors dwelt there together, the time did come when the unity was broken, and the first division appears to have been a bifurcation.

But it does tell more about the condition of the European Aryans. The sea, for instance, was certainly known to them now, though it had not been before, and we may see that their knowledge was not merely that arising from vague reports, by the fact that they possessed, not only a common name for fish, but also special names for various sea and shell-fish, among which may be mentioned the seal, the lobster, and the oyster. It may be possibly that even at this early stage of a united life they extended from the Baltic to the Adriatic and the Ægean; but of this we cannot be certain.

We are on surer ground when we examine the state of their civilisation. The most important change we find is that agriculture now assumes far greater importance; the terms referring to it, before so scanty and doubtful, occur in profusion; we can determine exactly the words that were used for ploughing, sowing, and reaping, for the cornfield, the furrow, and the harvest, for the seed, the harrow, and the pitchfork. Wheat and barley, oats and millet, all are raised for food; we find, it is true, no common word for bread, but this is easily accounted for: as agriculture advanced in the sundered nations, new and improved preparations from corn may well have displaced the rude primitive cakes, and, with the thing, the word may have fallen into oblivion. Peas and beans, turnips and onions, poppies and hemp, are all grown in the gardens. No new metals are added to the three which were known to the united Indo-Europeans, but the number of tools that we can prove to have been made from them is greatly increased.

Some of these, however, appear to have been still, occasionally at least, made of flints. Weapons, before unknown, now make their appearance, and defensive armour is seen to be in use. The arts of clothing have developed; weaving, but obscurely hinted at before, and probably not advanced beyond a rough kind of plaiting, is now familiar, and furs and leather come into prominence as materials of dress. Nor is the advance less conspicuous in the important art of cooking; yeast now first makes its appearance, and various kinds of soup are used.

Every fact that we can gather points us to a life, simple indeed, but settled and orderly, and far removed from barbarism. In religious and moral ideas we cannot now trace any important advance upon an earlier stage, and in fact analogy would lead us rather to look for incipient confusion and decline. But in political matters the case is otherwise. It is now first that language tells us of other conceptions than those of the king, his subordinate nobles, and the heads of households. The *people* comes into view, and the earliest name by which it is known shows it to us as already the source of all lawful power. The ideas of *citizenship* and of *law* appear to us, and we can dimly see the slow development of that ordered freedom which has, more than any other thing, given to the Aryan peoples their place of pre-eminence in the annals of the world.

NOTES.—*Indo-Germanic* and *Indo-European*.—The Germanic or European races or languages derived from India or Asia. *Turanian*.—Those tribes who spoke a language different from the Aryan, the Semitic, or the Chinese. From *Turan*, the Persian name for the countries north of *Iran*, or Persia. The *Semitic* is the family of languages of which Hebrew and Arabic are examples. *Sanskrit*.—A dead language of India, held sacred by the Brahmins as that in which their earliest religious books are written. It is the mother language of the various Aryan languages. *Vedas, The*.—Ancient sacred books of India. The name means, lit, knowledge. The *Rig veda* is the first of the four vedas. *Zend-avesta, The*, lit. "the living word."—The ancient sacred writings of the Parsees. They are ascribed to Zoroaster, but in their present form are not older than A.D. 200. Zoroaster, or Zardusht, lived about 600 years before Christ, and was either the founder or the reformer of the Persian or Parsee fire-worship, or, as it is sometimes called, of the Magian Religion. The *Vendidad*.—The religious law of the Parsees. The *Zend-avesta* consists of two parts, of which the *Vendidad* is one. It is the Parsee counterpart of the Law of Moses in the Jewish Scriptures. The *Brehon Laws of Ireland*.—A "Brehon" was a clan-'judge' amongst the native Irish. The Brehon laws were, therefore, the laws administered by these tribe judges. The Irish decided questions of right by these obscure rules and customs as often as possible, until very recent times. Of the rise of this code nothing is known, except that it was of immemorial antiquity, and had been handed down from one 'Brehon' to another from ages long before history. *Pecunia* and *peculium*, are both derived from the word *pecus*, cattle. *Pecunia* is the Latin word for money, because cattle were the main form of wealth originally, for which reason the figure of an ox was stamped on the earliest money. *Peculium* is the Latin word for property specially one's own, and shows how this property in the early ages consisted in herds.—*Max Müller*.—Professor of Comparative Philology at Oxford. A brilliant writer on the Science of Languages and related subjects, and a great scholar. Born at Dessau, in 1823. *Southwards*.—When the Aryan race thus divided,

it formed two great migrations—the one to the east, to found the Eastern Aryan nations in long after ages; the other to the west, to become in times equally distant the Aryan races of Europe. *The Indus.*—A great river flowing through the recesses of the Hindoo Koosh, from its sources in Thibet, and then forming the western boundary of India. Falls into the Arabian Sea. Length, 1,500 miles. Its yearly discharge of water is estimated at 150,000,000 tons. *Nerbudda.*—A river of Hindostan, flowing westwards through the Bengal and Bombay Presidencies. It falls into the Gulf of Cambay, in the Indian Ocean, a little north of Surat. Length, 800 miles. *Ganges.*—A great river which, rising in the Himalayas, flows eastwards across Bengal to the Bay of Bengal. Length of its course, over 1,500 miles. Before breaking from the vast mountains in which it has its sources, it meanders through them for about 800 miles. *The Caspian Sea.*—An inland sea of Asia, north of Persia. 730 miles from north to south, and from 150 to 270 from east to west. The water is salt. It has neither tides nor outlets, evaporation keeping it from overflowing, though it receives a great many rivers.

NIGHT AND DEATH.—*Joseph Blanco White.*

Born, 1775; died, 1841; aged 66.

Joseph Blanco White was born in Spain. His family was Irish by descent, but had been long settled in the Peninsula. Having been educated for the Roman Catholic priesthood, he took holy orders in 1799, but having come to England in 1810, he became a Protestant. He lived in this country from that time, and became well known in miscellaneous literature for the ease and purity of his English style, notwithstanding its not having been his vernacular. This sonnet was pronounced by Wordsworth the finest in English poetry.

MYSTERIOUS Night! When our first Parent knew
Thee, from report divine, and heard thy name,
Did he not tremble for thy lovely frame,
This glorious canopy of Light and Blue?
Yet 'neath a curtain of translucent dew,
Bathed in the rays of the great setting Flame,
Hesperus with the Host of Heaven came,
And lo! Creation widened in Man's view.
Who could have thought such Darkness lay concealed
Within thy beams, O Sun! or who could find,
Whilst fly, and leaf, and insect stood revealed,
That to such countless Orbs thou mad'st us blind!
Why do we then shun Death with anxious strife?
If Light can thus deceive, wherefore not Life?

HAYDON'S LITERARY PARTY.—*B. R. Haydon.*

Benjamin Robert Haydon was an English artist of great powers, but of equal want of practical wisdom, so that his career, which might have been famous, was a life-long struggle, ending in suicide. Kind, but rash, industrious, learned, wise in his own profession, foolish in the common

affairs of life, he has left a name which moves our mingled pity and admiration. His chief pictures were "Dentatus," "Christ's entry into Jerusalem," "The Judgment of Solomon," and "Napoleon at St. Helena." His "Journal," from which this extract is taken, is a delightful book of literary anecdote. Haydon was born in 1786: he died in 1846.

In December Wordsworth was in town, and as Keats wished to know him, I made up a party to dinner of Charles Lamb, Wordsworth, Keats, and Monkhouse his friend, and a very pleasant party we had.

I wrote to Lamb and told him the address was 22, Lisson Grove, North, at Rossi's, half-way up, right-hand corner. I received his characteristic reply—

"My Dear Haydon,

"I will come with pleasure to 22, Lisson Grove, North, at Rossi's, half-way up, right hand corner, if I can find it.

"Yours,

"C. Lamb."

"20, Russell Court, Covent Garden, East,
Half way up, next the corner, left-hand side."

On December 28th the immortal dinner came off, in my painting room, with Jerusalem towering up behind us on a background. Wordsworth was in fine cue, and we had a set-to on Homer, Shakespeare, Milton, and Virgil. Lamb got exceedingly merry and exquisitely witty; and his fun, in the midst of Wordsworth's solemn intonations of oratory, was like the sarcasm and wit of the fool in the intervals of Lear's passion. Lamb soon got delightfully merry. He made a speech and voted me absent, and made them drink my health.

"Now," said Lamb, "you old lake poet—you rascally poet, why do you call Voltaire dull?"

We all defended Wordsworth, and affirmed there was a state of mind when Voltaire would be dull.

"Well," said Lamb, "here's Voltaire, the Messiah of the French nation, and a very proper one, too." He then in a strain of humour beyond description abused me for putting Newton's head into my picture. "A fellow," said he, "who believed nothing unless it was as clear as the three sides of a triangle." And then he and Keats agreed he had destroyed all the poetry of the rainbow by reducing it to the prismatic colours. It was impossible to resist him, and we all drank "Newton's health, and confusion to mathematics." It was delightful to see the good-humour of Wordsworth in giving in

to all our frolics without affectation, and laughing as heartily as the best of us.

By this time other friends joined, amongst them poor Ritchie, who was going to penetrate by Fezzan to Timbuctoo. I introduced him to all "as a gentleman going to Africa." Lamb seemed to take no notice; but all of a sudden he roared out "Which is the gentleman we are going to lose?" We then drank the victim's health, in which Ritchie joined.

In the morning of this delightful day a gentleman, a perfect stranger, had called on me. He said he knew my friends; had an enthusiasm for Wordsworth; and begged I would procure him the happiness of an introduction. He told me he was a comptroller of stamps, and often had correspondence with the poet. I thought it a liberty, but still, as he seemed a gentleman, I told him he might come.

When we retired to tea we found the Comptroller. In introducing him to Wordsworth I forgot to say who he was. After a little time the Comptroller looked down, looked up, and said to Wordsworth, "Don't you think, sir, Milton was a great genius?" Keats looked at me. Wordsworth looked at the Comptroller. Lamb, who was dozing at the fire, turned round and said, "Pray, sir, did you say Milton was a great genius?" "No, sir; I asked Mr. Wordsworth if he were not." "Oh," said Lamb, "then you are a silly fellow." "Charles,—my dear Charles," said Wordsworth; but Lamb, perfectly innocent of the confusion he had created, was off again by the fire.

After an awful pause the Comptroller said, "Don't you think Newton a great genius?" I could not stand it any longer. Keats put his head into my books. Ritchie squeezed in a laugh. Wordsworth seemed asking himself, "Who is this?" Lamb got up, and taking a candle, said, "Sir, will you allow me to look at your phrenological development?" He then turned his back on the poor man, and at every question of the Comptroller he chanted

> "Diddle, diddle, dumpling, my son John,
> Went to bed with his breeches on."

The man in office finding Wordsworth did not know who he was, said in a spasmodic and half-chuckling anticipation of easy victory, "I have had the honour of some correspondence with you, Mr. Wordsworth." "With me, sir?" said Wordsworth; "not that I remember." "Don't you, sir? I am a Comptroller of stamps." There was a dead silence, the Comptroller evidently

thinking that was enough. While we were waiting for Wordsworth's reply, Lamb sung out,

"Hey diddle, diddle,
The cat and the fiddle."

"My dear Charles," said Wordsworth.

"Diddle, diddle, dumpling, my son John,"

chanted Lamb; and then rising exclaimed, "Do let me have another look at that gentleman's organs?" Keats and I hurried Lamb into the painting room, shut the door, and gave way to inextinguishable laughter. Monkhouse followed and tried to get Lamb away. We went back, but the Comptroller was irreconcileable. We soothed and smiled, and asked him to supper. He stayed, though his dignity was sorely affected. However, being a good-natured man, we parted all in good humour, and no ill effects followed.

All the while, until Monkhouse succeeded, we could hear Lamb struggling in the painting room, and calling at intervals, "Who is that fellow? Allow me to see his organs once more?"

It was indeed an immortal evening. Wordsworth's fine intonation as he quoted Milton and Virgil, Keats's eager, inspired look, Lamb's quaint sparkle of lambent humour, so speeded the stream of conversation that in my life I never passed a more delightful time. All our fun was within bounds. Not a word passed that an apostle might not have listened to. It was a night worthy of the Elizabethan age, and my solemn Jerusalem flashing up by the flame of the fire, with Christ hanging over us like a vision, all made up a picture which will long glow upon

"That inward eye,
Which is the bliss of solitude."

Keats made Ritchie promise he would carry his *Endymion* to the great desert of Sahara, and fling it in the midst.

Poor Ritchie went to Africa and died, as Lamb foresaw, in 1819. Keats died in 1821 at Rome. C. Lamb is gone, joking to the last.

Monkhouse is dead, and Wordsworth and I are the only two now living (1841) of that glorious party.

NOTES. — *Wordsworth, William.* — A great English poet. Born, 1770; died, 1850. His principal poem is called "The Excursion;" but it is on his shorter poems that his fame rests perhaps most securely. *Keats, John.*—A fine English poet. Born, 1795; died at Rome, of consumption, in 1821, at the age of 26. See *Endymion*. *Lamb, Charles.* —One of the finest of our English essayists, and, in life, one of the most genial and kindly of men. He used the pseu-

donym Elia in writing his most famous essays. His kindness to his sister is one of the most touching and beautiful stories in the annals of a brother's love. Born, 1775; died, 1834. Buried at Edmonton. *Monkhouse.*—An unknown friend of Keats. *Jerusalem.*—Haydon's picture of Christ's entry into Jerusalem. *Homer, &c.*—See notes to other extracts. *Lear.*—One of the tragedies of Shakspere. *Voltaire.*—A famous French writer. Born, 1694; died, 1778. A clever, vain, worthless man. Right in his hatred of tyranny, he was worse than wrong in his flippant irreverence. He had faith in nothing, in fact, except in his own surpassing merits. *Christ.*—In the picture of "The Entry," &c. *Endymion.*—The principal poem of Keats. *Ritchie.*—An African traveller. *Newton, Sir Isaac.*—Born, 1642; died, 1727. One of the greatest of English men of science. To him we owe the discovery of the law of gravitation and the final solution of the laws of the Solar System. *Fezzan.*—The region south of Tripoli, in Africa. *Timbuctoo.*—An inland African city on the Niger.

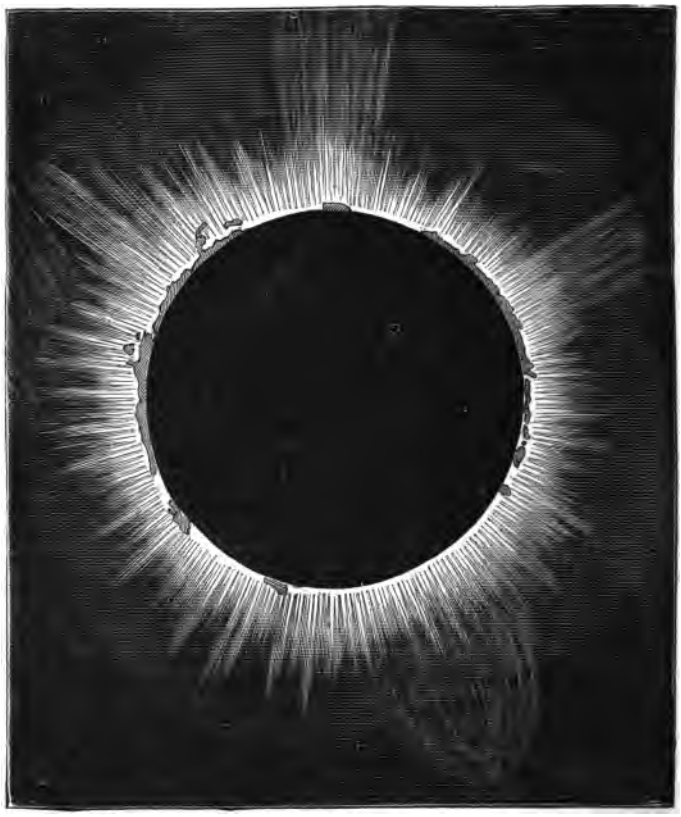
A GREAT SOLAR ERUPTION.—*R. A. Proctor, M.A.*

An eminent living writer on Astronomy. He has published many books, and his papers in *Good Words* and other periodicals are equally delightful and instructive.

A MASS of cloudlike form seemed as though suspended in the solar atmosphere upon five bright stems or stalks. I know no better way of describing the appearance of this object than by comparing it to what may be seen at night in the neighbourhood of Sheffield, and elsewhere in the midland regions, when enormous chimneys pour forth masses of smoke into the air, the issuing smoke being intensely illuminated by the glowing fires beneath, while there hangs a vast mass of smoke over the whole district, illuminated (but far less brilliantly) by the fiery columns which seem to stand above the furnaces. It had remained, with very little change, since the preceding noon—a long, low, quiet-looking cloud, not very dense or brilliant, nor in any way remarkable except for its size. It was made up mostly of filaments nearly horizontal, with its lower surface at a height of some 15,000 miles, but was connected with the mass below, as is usually the case, by three or four vertical columns, brighter and more active than the rest. The dimensions of this cloud were not extraordinary compared with those of other objects of the class, though by comparison with all our terrestrial measurements they appear simply stupendous. It was about 100,000 miles long, and about 54,000 miles high. In other words, twelve globes, such as this earth on which we live, might be set in a row without exceeding the length of this monstrous cloud; while six such globes, standing one upon the other, would not have equalled it in height.

At half-past twelve there were some indications of an approaching change. They were but slight, however. One of

the smoke-columns of my illustration had become exceedingly bright, and was curiously bent to one side; and near the base of another a little brilliant lump had developed itself, shaped much like those white masses of cloud which are sometimes



called woolpacks (but technically termed *cumulus* clouds), very commonly seen on summer mornings.

What was my surprise, on returning at five minutes to one (or in less than half an hour) to find that in the meantime the whole thing had been literally blown to shreds by some incon-

ceivable uprush from beneath. In place of the quiet cloud I had left, the air (if I may use the expression) was filled with flying *débris*—a mass of detached vertical fusiform (that is, extended) filaments, brighter and closer together, where the 'pillars' had formerly stood, *and rapidly ascending*.

They consisted of glowing hydrogen, and looked like mere filaments, but they were from four or five thousand to thirteen or fourteen thousand miles long, and from nine hundred to fourteen hundred miles wide—threads, therefore, of goodly dimensions.

These monstrous filaments were rapidly ascending. When I first saw them some of them had already reached a height of nearly 100,000 miles; in ten minutes the uppermost were more than 200,000 miles above the solar surface. This was ascertained by careful measurement. The velocity of ascent, 166 miles per second, is considerably greater than anything hitherto recorded.

But, wonderful as a velocity of 166 miles per second must appear, the velocity indicated by this upward motion is enormously greater. Matter flung forth from the sun could not reach a height of 200,000 miles, unless it crossed the sun's surface (or what appears to us as such) with a velocity of upwards of 210 miles per second. Here is at once an increase of 50 miles per second. But even this is not all. Although matter flung from the sun at this enormous rate would reach a height of 200,000 miles (not taking into account the resistance of the solar atmosphere), it would by no means traverse the last 100,000 miles of such an upward flight at an average rate of 166 miles per second. As the filaments rose they gradually faded away like a dissolving cloud, and at a quarter past one only a few filmy wisps, with some brighter streamers low down near the sun, remained to mark the place. Thus we seem precluded from regarding the range of 200,000 miles, enormous though it is, as the extreme limit reached by the filaments.

In the meantime the little white cloud had grown and developed wonderfully, into a mass of rolling and ever-changing flame, to speak according to appearances. First it was crowded down, as it were, along the solar surface; later it rose almost pyramidally 50,000 miles in height; then its summit was drawn out into long filaments and threads, which were most curiously rolled backwards and downwards, like the volutes of an Ionic capital; and finally, it faded away, and by half-past two had vanished like the other.

THE TEAR OF REPENTANCE.—*Moore.*

Thomas Moore was born in Dublin in 1779, and died in 1852. His longest poem is "Lalla Rookh," of which this is one of the tales. He was an intimate friend of Byron and Sheridan, and wrote the lives of both. His poetry is melodious and elegant, but it wants simplicity and naturalness.

ONE morn a Peri at the gate
Of Eden stood, disconsolate;
And as she listen'd to the Springs
  Of Life within, like music flowing,
And caught the light upon her wings
  Through the half-open portal glowing,
She wept to think her recreant race
Should e'er have lost that glorious place!

"How happy," exclaim'd this child of air,
"Are the holy Spirits who wander there,
  'Mid flowers that never shall fade or fall;
Though mine are the gardens of earth and sea,
And the Stars themselves have flowers for me,
  One blossom of Heaven out-blooms them all!"
* * * *

The glorious Angel who was keeping
The gates of Light, beheld her weeping;
And, as he nearer drew and listen'd
To her sad song, a tear-drop glisten'd
  Within his eyelids, like the spray
From Eden's fountains, when it lies
  On the blue flow'r, which—Bramins say—
Blooms nowhere but in Paradise!
"Nymph of a fair but erring line!"
Gently he said,—"One hope is thine.
'Tis written in the Book of Fate,
  The Peri yet may be forgiven,
Who brings to this eternal gate
  The Gift that is most dear to Heaven!
Go, seek it, and redeem thy sin—
'Tis sweet to let the Pardoned in!"

Rapidly as comets run
To the embraces of the sun,
Fleeter than the starry brands,
Flung at night from angel hands

At those dark and daring sprites
Who would climb the empyreal heights,
Down the blue vault the PERI flies,
And, lighted earthward by a glance
That just then broke from morning's eyes,
Hung hovering o'er our world's expanse.

* * * *

Still laughs the radiant eye of Heaven,
Nor have the golden bowers of Even
In the rich West begun to wither;—
When, o'er the vale of BALBEC winging
Slowly, she sees a child at play,
Among the rosy wild-flowers singing,
As rosy and as wild as they;
Chasing, with eager hands and eyes,
The beautiful blue damsel-flies
That flutter'd round the jasmine stems,
Like wingèd flowers or flying gems:—
And, near the boy, who, tired with play,
Now nestling 'mid the roses lay,
She saw a wearied man dismount
From his hot steed, and on the brink
Of a small imaret's rustic fount
Impatient fling him down to drink.
Then swift his haggard brow he turn'd
To the fair child, who fearless sat,
Though never yet hath day-beam burn'd
Upon a brow more fierce than that—
Sullenly fierce—a mixture dire,
Like thunder-clouds, of gloom and fire!
In which the PERI'S eye could read
Dark tales of many a ruthless deed.

* * * *

Yet tranquil now that man of crime
(As if the balmy evening time
Soften'd his spirit) look'd and lay,
Watching the rosy infant's play:—
Though still, whene'er his eye by chance
Fell on the boy's, its lurid glance
Met that unclouded, joyous gaze,
As torches that have burnt all night
Through some impure and godless rite,
Encounter morning's glorious rays.

But, hark! the vesper call to prayer,
As slow the orb of daylight sets,
Is rising sweetly on the air
From SYRIA'S thousand minarets!
The boy has started from the bed
Of flowers, where he had laid his head.
And down upon the fragrant sod
Kneels, with his forehead to the south,
Lisping th' eternal name of God
From Purity's own cherub mouth,
And looking, while his hands and eyes
Are lifted to the glowing skies,
Like a stray babe of Paradise,
Just lighted on that flowery plain
And seeking for its home again!

* * * *

And how felt *he*, the wretched Man
Reclining there—while memory ran
O'er many a year of guilt and strife,
Flew o'er the dark flood of his life,
Nor found one sunny resting-place,
Nor brought him back one branch of grace!

"There was a time," he said, in mild,
Heart-humbled tones,—"thou blessed child!
"When, young, and haply pure as thou,
"I look'd and pray'd like thee—but now—"
He hung his head—each nobler aim,
And hope, and feeling, which had slept
From boyhood's hour, that instant came
Fresh o'er him, and he wept—he wept!
Blest tears of soul-felt penitence!
In whose benign, redeeming flow
Is felt the first, the only sense
Of guiltless joy that guilt can know.

* * * *

And now—behold him kneeling there
By the child's side, in humble prayer,
While the same sunbeam shines upon
The guilty and the guiltless one,
And hymns of joy proclaim through Heaven
The triumph of a Soul Forgiven!

'Twas when the golden orb had set,
While on their knees they lingered yet,

There fell a light more lovely far
Than ever came from sun or star,
Upon the tear that, warm and meek,
Dew'd that repentant sinner's cheek.
To mortal eye this light might seem
A northern flash or meteor beam—
But well the enraptured Peri knew
'Twas a bright smile the Angel threw
From Heaven's gate, to hail that tear
Her harbinger of glory near!

"Joy! joy for ever! my task is done—
The Gates are passed, and Heaven is won!"

Peri.—In *Persian Mythology* a descendant of fallen spirits excluded from Paradise till a penance had been accomplished. *Baalbec.*—A ruined city of Syria, north of Damascus, in the valley of the Lebanon. *Starry Brands.*—The Mahometans suppose that falling stars are the fire-brands wherewith the good angels drive away the bad, when they approach too near the empyrean, or verge of the heavens.—Frere. *Imaret.*—A small caravanserai where travellers are lodged and fed for three days, without charge. *Damsel-flies.*—You behold there a considerable number of a remarkable species of beautiful insects, the elegance of whose appearance, and their attire, procured for them the name of Damsels.—Sonnini.

Composition.—Write the story of the poem in your own words, in prose.

AN ODE TO PEACE.—*T. Hood.*

The following is the supposed effort of an inspired Footman, written amidst interruptions.

WRITTEN ON THE NIGHT OF MY MISTRESS'S GRAND ROUT.

Oh, Peace! oh come with me and dwell—
But stop, for there's the bell.
Oh, Peace! for thee I go and sit in churches,
On Wednesday when there's very few
In loft or pew—
Another ring, the tarts are come from Birch's.
Oh, Peace! for thee I have avoided marriage—
Hush! there's a carriage.
Oh, Peace! thou art the best of earthly goods—
The five Miss Woods.
Oh, Peace! thou art the Goddess I adore—
There come some more.
Oh, Peace! thou child of solitude and quiet—
That's Lord Drum's footman, for he loves a riot.

Oh, Peace!
Knocks will not cease.
Oh, Peace! thou wert for human comfort plann'd—
That's Weippert's band.

Oh, Peace! how glad I welcome thy approaches—
I hear the sound of coaches.
Oh, Peace! oh, Peace!—another carriage stops—
It's early for the Blenkinsops.

Oh, Peace! with thee I love to wander,
But wait till I have show'd up Lady Squander;
And now I've seen her up the stair,
Oh, Peace!—but here comes Captain Hare.
Oh, Peace! thou art the slumber of the mind,
Untroubled, calm, and quiet, and unbroken,—
If that is Alderman Guzzle from Portsoken,
Alderman Gobble won't be far behind;
Oh, Peace! serene in worldly shyness,—
Make way there for his Serene Highness!

Oh, Peace! if you do not disdain
To dwell amongst the menial train,
I have a silent place, and lone,
That you and I may call our own;
Where tumult never makes an entry—
Susan? What business have you in my pantry?

Oh, Peace!—but there is Major Monk
At variance with his wife—Oh, Peace!
And that great German, Van der Trunk,
And that great talker, Miss Apreece;—
Oh, Peace! so dear to poets' quills—
They're just beginning their quadrilles—
Oh, Peace! our greatest renovator;—
I wonder where I put my waiter.
Oh, Peace!—but here my Ode I'll cease;
I have no peace to write of Peace.

NOTE.—*Van der Trunk.*—Van is the *Dutch* prefix; Von (of) is the *German*.

ON BOOKS.—*Goldsmith.*

Oliver Goldsmith, a delightful poet, essayist, &c., was born at Pallas, Ireland, in 1728, and died in London in 1774. He is buried in the open space north of the Temple Church. He was one of the kindest and simplest of men. Reynolds would not enter his painting-room the day Goldsmith died, so deep was his regret for him. This extract is from the "Citizen of the World." Every one knows his "Traveller," &c.

You are now arrived at an age, my son, when pleasure dissuades from application; but rob not by present gratification all the succeeding period of life of its happiness. Sacrifice a little pleasure at first to the expectance of greater. The study of a few years will make the rest of life completely easy.

He who has begun his fortune by study, will certainly confirm it by perseverance. The love of books damps the passion for pleasure, and when this passion is once extinguished, life is then cheaply supported; thus a man being possessed of more than he wants, can never be subject to great disappointments, and avoids all those meannesses which indigence sometimes unavoidably produces.

There is unspeakable pleasure attending the life of a voluntary student. The first time I read an excellent book, it is to me just as if I had gained a new friend. When I read over a book I have perused before, it resembles the meeting with an old one. We ought to lay hold of every incident in life for improvement, the trifling as well as the important. It is not one diamond alone which gives lustre to another, a common coarse stone is also employed for that purpose. Thus I ought to draw advantage from the insults and contempt I meet with from a worthless fellow. His brutality ought to induce me to self-examination, and correct every blemish that may have given rise to his calumny.

Yet with all the pleasures and profits which are generally produced by learning, parents often find it difficult to induce their children to study. They often seem dragged to what wears the appearance of application. Thus being dilatory in the beginning, all future hopes of eminence are entirely cut off. If they find themselves obliged to write two lines more polite than ordinary, their pencil then seems as heavy as a mill-stone, and they spend ten years in turning two or three periods with propriety.

But it is of no importance to read much, except you be

regular in reading. If it be interrupted for any considerable time, it can never be attended with proper improvement. There are some who study for one day with intense application, and repose themselves for ten days after. But wisdom is a coquette, and must be courted with unabating assiduity.

It was a saying of the ancients, that a man never opens a book without reaping some advantage by it. I say with them, that every book can serve to make us more expert, except romances, and these are no better than the instruments of debauchery. They are dangerous fictions, where love is the ruling passion.

Avoid such performances where vice assumes the face of virtue; seek wisdom and knowledge without ever thinking you have found them. A man is wise, while he continues in the pursuit of wisdom; but when he once fancies that he has found the object of his inquiry, he then becomes a fool. Learn to pursue virtue, from the man that is blind, who never makes a step without first examining the ground with his staff.

The world is like a vast sea, mankind like a vessel sailing on its tempestuous bosom. Our prudence is its sails, the sciences serve us for oars, good or bad fortune are the favourable or contrary winds, and judgment is the rudder; without this last the vessel is tossed by every billow, and will find shipwreck in every breeze. In a word, obscurity and indigence are the parents of vigilance and economy; vigilance and economy of riches and honour; riches and honour of pride and luxury; pride and luxury of impurity and idleness; and impurity and idleness again produce indigence and obscurity. Such are the revolutions of life.

Composition.—Write the counsels here given, briefly, in your own words.

COUNSEL TO YOUTH.—*John Ruskin.*

See page 102.

It is to be remembered that the giving of prizes can only be justified on the ground of their being the reward of superior diligence and more obedient attention to the directions of the teacher. They must never be supposed, because practically they never can become, indications of superior genius; unless in so far as genius is likely to be diligent and obedient, beyond the strength and temper of the dull.

But, without any reference to the opinions of others, and without any chance of partiality in your own, there is one test by which you can all determine the rate of your real progress. Examine, after every period of renewed industry, how far you have enlarged your faculty of admiration. Consider how much more you can see to reverence, in the work of masters; and how much more to love, in the work of Nature. This is the only constant and infallible test of progress:—that you wonder more at the work of great men, and that you care more for natural objects. You have often been told by your teachers to expect this last result; but I fear that the tendency of modern thought is to reject the idea of that essential difference in rank between one intellect and another, of which increasing reverence is the wise acknowledgment.

You may, at least in earlier years, test accurately your power of doing anything in the least rightly, by your increasing conviction that you never will be able to do it as well as it has been done by others. That is a lesson, I repeat, which differs much, I fear, from the one you are commonly taught. The vulgar and incomparably false saying of Macaulay's, that the intellectual giants of one age become the intellectual pigmies of the next, has been the text of too many sermons lately preached to you. You think you are going to do better things —each of you—than Titian and Phidias; write better than Virgil; think more wisely than Solomon. My good young people, this is the foolishest, quite pre-eminently—perhaps almost the harmfullest—notion that could possibly be put into your empty little eggshells of heads. There is not one in a million of you that can ever be great in anything. To be greater than the greatest that have been is permitted, perhaps to no man in Europe in the course of two or three centuries.

But because you cannot be Handel and Mozart, is it any reason why you should not learn to sing "God save the Queen" properly, when you have a mind to? Because a girl cannot be *prima donna* in the Italian Opera, is it any reason why she should not learn to play a jig for her brothers and sisters in good time, or a soft little tune for her tired mother, or that she should not sing to please herself, among the dew, on a May morning? Believe me, joy, humility, and usefulness always go together; as insolence with misery, and these both with destructiveness. You may learn with proud teachers how to throw down the Vendome Column, and burn the Louvre, but never how to lay so much as one touch of safe colour, or one layer of steady stones: and

if, indeed, there be among you a youth of true genius, be assured that he will distinguish himself first, not by petulance or by disdain, but by discerning firmly what to admire and whom to obey.

It will, I hope, be the result of the interest lately awakened in Art through our Provinces, to enable each town of importance to obtain, in permanent possession, a few—and it is desirable there should be no more than a few—examples of consummate and masterful art, an engraving or two by Dürer, a single portrait by Reynolds, a fifteenth century Florentine drawing, a thirteenth century French piece of painted glass, and the like; and that, in every town occupied in a given manufacture, examples of unquestionable excellence in that manufacture should be made easily accessible in its civic museum.

NOTES.—*Macaulay.*—See p. 23. *Titian.*—A great Italian painter. Born in the Venetian States, in 1477; died at Venice, 1576, at the age of 99. *Phidias.*—A great Greek sculptor; died about B.C. 432. *Virgil.*—The finest of the Roman poets. Born near Mantua, B.C. 70; died, B.C. 19. *Handel.*—A great musical composer. Best known by his wonderful oratorio, "The Messiah." Born in Saxony, 1684; died in London, 1759. Buried in Westminster Abbey. *Mozart.*—A great musical genius. Born, 1756; died, 1792, at Vienna. *The Vendome Column.*—A triumphal bronze column, erected in Paris by the First Napoleon, whose victories were represented on it, as Trajan's were on *his* column at Rome. The bronze used for these *reliefs* was made from cannon taken in Napoleon's battles. The statue of Napoleon surmounted the column. During the Insurrection of the Commune in 1871 the column was pulled down, but it is now being restored. It was 133 feet high and 12 feet in diameter. *The Louvre.*—A palace in Paris, in which the great national collections of paintings, &c., were preserved. It was burned during the Communist Insurrection. *Durer, Albert.*—An eminent artist, and the first engraver on wood. Born at Nuremberg, 1471, and died there, 1528. *Reynolds, Sir Joshua.*—A great English artist. Born at Plympton, Devonshire, 1723: died, 1792. Buried in St. Paul's. *Florentine drawing.*—Leonardo da Vinci, 1452—1519, and Michael Angelo Buonarotti, 1474—1564, are the great representatives of this school. *Painted glass.*—Glass-painting was known to the ancient Egyptians. It was revived about the tenth century. Specimens of the thirteenth century exist in England.

OTHELLO'S ACCOUNT OF HIS COURTSHIP OF DESDEMONA.—*Shakspere.*

MOST potent, grave, and reverend signiors,
My very noble and approv'd good masters,—
That I have ta'en away this old man's daughter,
It is most true; true, I have married her;
The very head and front of my offending
Hath this extent, no more. Rude am I in my speech,
And little bless'd with the soft phrase of peace;
For since these arms of mine had seven years' pith,
Till now some nine moons wasted, they have us'd
Their dearest action in the tented field;
And little of this great world can I speak,

More than pertains to feats of broil and battle;
And therefore little shall I grace my cause
In speaking for myself: Yet, by your gracious patience,
I will a round unvarnish'd tale deliver
Of my whole course of love: what drugs, what charms,
What conjuration, and what mighty magic,
(For such proceeding I am charg'd withal,)
I won his daughter.
Her father lov'd me; oft invited me;
Still question'd me the story of my life,
From year to year; the battles, sieges, fortune,
That I have pass'd.
I ran it through, even from my boyish days,
To the very moment that he bade me tell it.
Wherein I spoke of most disastrous chances;
Of moving accidents by flood and field;
Of hair-breadth 'scapes i' the imminent deadly breach;
Of being taken by the insolent foe
And sold to slavery; of my redemption thence,
And portance in my traveller's history,
(Wherein of antres vast, and deserts idle,
Rough quarries, rocks, and hills whose heads touch heaven,
It was my hint to speak,) such was my process;—
And of the Cannibals that each other eat,
The Anthropophagi, and men whose heads
Do grow beneath their shoulders. These things to hear
Would Desdemona seriously incline:
But still the house affairs would draw her thence;
Which ever as she could with haste despatch,
She'd come again, and with a greedy ear
Devour up my discourse: which I observing,
Took once a pliant hour; and found good means
To draw from her a prayer of earnest heart,
That I would all my pilgrimage dilate,
Whereof by parcels she had something heard,
But not intentively: I did consent;
And often did beguile her of her tears,
When I did speak of some distressful stroke
That my youth suffer'd. My story being done,
She gave me for my pains a world of sighs:
She swore,—In faith, 'twas strange, 'twas passing strange;
'Twas pitiful, 'twas wondrous pitiful:
She wish'd she had not heard it; yet she wish'd
That heav'n had made her such a man: she thank'd me;

And bade me, if I had a friend that lov'd her,
I should but teach him how to tell my story,
And that would woo her. Upon this hint I spake:
She lov'd me for the dangers I had pass'd;
And I lov'd her that she did pity them.
This only is the witchcraft I have us'd.

NOTES.—*Signiors.*—Lords, from Latin, *senior*, older. *Approv'd.*—He had *proved* their goodness. *Wasted.*—He had been unemployed for nine months. *Drugs, &c.*—It was formerly believed that love could be excited in one towards another by love potions, sorcery, &c. Anne Boleyn was accused of having gained Henry VIII.'s affections by such means, though of course it was only a contemptible slander. A statute of James I. is here alluded to, which says that, if any person or persons should take upon him or them, by *witchcraft, inchantment, charm,* or *sorcery,* to the intent to provoke any person to unlawful love, they should, for the first offence, suffer imprisonment, &c. *Accidents.*—Things that happened (Latin, *accido,* to happen, to fall out). *Imminent.*—Threatening, lit., projecting over, threatening to fall. *Slavery.*—Prisoners of war were sold as slaves in the middle ages. *Portance.*—Carriage, bearing (L., *porto,* to carry *one's self*). *Antres.*—Caves (L., *antrum,* a cave). *Hint, &c.*—It had been suggested to him to speak of these things. *Anthropophagi.*—Men eaters. *Men whose heads, &c.*—Pliny speaks of such men; and Sir John Maundeville, a traveller of the middle ages (1300-1372), famous for his fabulous stories of wonders in distant countries, says, "In another isle dwell folk of foul stature, and of cursed kinds, that have no heads, and their eyes are in their shoulders." On the under side of the loose seats of the choir of Ripon cathedral there are carvings of such imaginary beings, with their faces on their breasts. *Dilate.*—Give at full length (L., *differo dilatum,* to spread abroad). *Intentively.*—Attentively (L., *intendo,* to stretch towards—(of the mind, when listening eagerly).

RELATION BETWEEN THE INDO-EUROPEAN LANGUAGES.

THE relation between the Indo-European languages will be seen by the following:—

	GERMANIC.			
ENGLISH	father,	mother,	son,	brother
ANGLO-SAXON	fæther,	mother,	sunu,	brother
FRISIAN	feder,	moder,	sun,	
FLEMISH, NETHERLANDISH, DUTCH OR LOW GERMAN	vader,	moeder,	zoon,	broeder
GOTHIC	arta,	modur,	sunus,	brothar
SWEDISH AND DANISH	fader,	moder,	son,	broder
ICELANDIC	fader,	mooder,	sunr,	broder
HIGH DUTCH OR GERMAN	vater,	mutter,	sohn,	bruder
	PERSIAN.			
ZEND	paitar,	matar,	bratar	
PERSIAN	pader,	mader,	fer*send*,	brader
BOKHARESE	petar,	mader	far*send*,	birader
PEHLVI	abider,	amider,		berur
OSSETINIAN	fider, dade,	mad,	firt,	arwad
KOORD OR KURD	baw,			brah
	INDIAN.			
SANSKRIT	pita,	mata,	suna,	bhrater
BENGALEE	pita,	mata,	shaleea,	bhaee
HINDOSTANEE	pita,	mader,	fur*sund*,	biradur

HELLENO-ROMAN.			
Armenian	hair,	mair	
Albanian or Skipetar	ba,	mama	
Old Greek	pater,	meter	
Romaic or Modern Greek	pateras,	matera	
Latin or Old Roman	pater,	mater,	frater
Italian	padre,	madre,	fratello
Spanish	padre,	madre	
Portuguese	pai,	mai	
French	père,	mère,	frère
Wallachian	tato,	muma,	frate
CELTIC.			
Welsh	tad,	mam,	brawd
Cornish	tas,	mam,	bredar
Breton	tat,	mam,	breur
Irish	athair,	mathair,	bhrathair
Erse or Irish of the Scotch Highlands	athair,	mathair,	brathair
Manx		moir,	braar
SLAVONIAN.			
Russian		mat, sunn,	brat
Slavish	bat,	mater, syn,	brat
Polish		matka, syn,	brat
Bohemian or Czech		sin	
Lithuanian		moter, sunus	

A MOONLIGHT EVENING.—*Lord Byron.*

Born, 1788; died, 1824.

From the Fourth Canto of "Childe Harold" (1818).

THE moon is up, and yet it is not night—
Sunset divides the sky with her—a sea
Of glory streams along the Alpine height
Of blue Friuli's mountains; Heaven is free
From clouds, but of all colour seems to be—
Melted to one vast Iris of the West,
Where the Day joins the past eternity;
While, on the other hand, meek Dian's crest
Floats through the azure air—an island of the blest!

A single star is at her side, and reigns
With her o'er half the lovely heaven; but still
Yon sunny sea heaves brightly, and remains
Roll'd o'er the peak of the far Rhætian hill,
As Day and Night contending were, until
Nature reclaim'd her order:—gently flows
The deep-dyed Brenta, where their hues instil
The odorous purple of a new-born rose,
Which streams upon her stream, and glass'd within it glows.

Filled with the face of heaven, which, from afar,
Comes down upon the waters; all its hues,
From the rich sunset to the rising star,
Their magical variety diffuse:
And now they change; a paler shadow strews
Its mantle o'er the mountains; parting day
Dies like the dolphin, whom each pang imbues
With a new colour as it gasps away,
The last still loveliest, till—'tis gone—and all is grey.

Vesuvius in eruption.

IN THE CRATER OF VESUVIUS.—*Professor Ansted.*

David Thomas Ansted was born in London, in 1814. He is Professor of Geology at King's College, London. He is the author of various excellent books on geology, and of many papers on it in current literature.

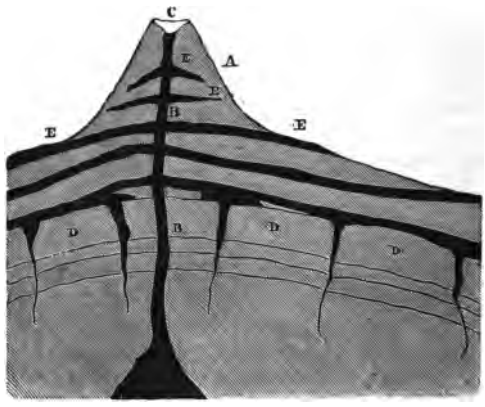
The outside of the great cone is chiefly composed of fine ashes, but there is a large mixture of small and large blocks of lava, penetrating at intervals through the cinder heaps. On the cone, and across the Atria del Cavallo or plain at its foot, are seen masses of grey trachytic lava, angular and fragmentary, and apparently fallen from some lofty cliff, such as that presented by the ridge of Monte Somma. The guides, however,

tell us—and observation soon proves their correctness—that these have been thrown out of the crater. I measured one that must have weighed at least twenty tons. The whole plain, though covered with recent lava, was strewn with blocks of smaller size of the same material, quite distinct from the black and scoriaceous material that had issued from the sides of the cone and run over the ground. There were also several of those rounded and spindle-shaped masses called volcanic bombs, some of which were very large (more than a cubic yard in content).

The view of the interior of the crater from the top is very grand, but, as a matter of course, the appearance is always changing. With some difficulty, and risk of injury to boots and dress, the crater could be entered and all parts visited. The walls were extremely steep, in many places vertical, and in some overhanging. The upper part is constantly falling in, but on the occasion of an eruption, the height of the cone is increased by fresh showers of ashes and stones. The hard walls are like those of a quarry, but in many places, where fumaroles exist, they are covered and concealed with loose black ash, striated here and there with the most brilliant yellow and orange tints. From small cavities in some parts of these rocks, air proceeds so intensely heated as to cook an egg in a few seconds. The rock here must glow within a few inches of the surface, as fragments of paper thrust in with a stick were at once reduced to tinder, though driven out immediately with great force by the current of hot air.

The floor of the crater was extremely remarkable. Except where the two vents of actual eruption had thrown up cones, it was one mass of fragments of the same pale-blue lava as that of which the walls are composed. These were fractured in the most extraordinary and inconceivable manner. They were split as if by the blow of some vast hammer. One great cleft of considerable depth extended across the bottom of the crater from one end to the other, and other splits appeared to have been produced in different directions. The fragments were detached and angular, and of all sizes. They were as fresh as if broken yesterday, and it was difficult in some places —impossible in others—to pass across and amongst them. Out of the middle of the principal crack a small crater was formed, and close by on another crevice (less distinctly shown) was a large pile of scoriæ and ashes, forming a small inner cone, with its own separate crater reaching down below the

level of the principal crater. Both these vents were in partial action. Even from the sides of the principal cone, before reaching the summit, a hissing sound, like that of a number of rockets let off at once, had attracted my attention, and I had timed the explosions as occurring at intervals of about two minutes, with much more considerable noise at intervals of six minutes. When inside the principal crater, I was able to see the nature of these eruptions. The depth of the principal crater, below the general level of the top of the cone, was about three hundred feet. The larger of the small cones of eruption rose about one hundred and twenty feet above the floor of the crater, and the smaller one only about six feet. They were about eighty yards asunder. The eruptions from these small vents seem to be alternate, generally more active from one for several hours, and then more active from the other, although the eruption from the smaller was generally preceded or accompanied by a small puff of steam from the *bocca grande*, or larger vent. Each time the noise was heard, a puff of white cloud (almost entirely steam), at very high temperature, came out with a steady rush from the smaller vent, accompanied by a number of fragments of red-hot scoriæ, as large as a man's fist, which fell around, and which were soft enough to admit of a copper coin being inserted within its substance without difficulty. The puff lasted only for a short time, and was followed



Section of a Volcano.

C the crater. B B the stream of lava from the central fire. A—cone or hill of ashes thrown out by the volcano. E transverse bands of lava which have flowed from the central fountain and now hold the light material of the cone together. D the old rocks heaved up and cleft by the heated vapours within, before they found vent through the funnel B. The lava has flowed into the clefts thus made. You see, here, that the "mountain" is the *work* of the volcano. At first there was none, but only a surface as level as the parts round.

by repose, but the heat of the air issuing from the vent was almost too great to allow me to look down into it. The eruptions from the *bocca grande* were insignificant during the time of my visit, but were said to be much more considerable than those from the small vent when they occur, rendering the crater at such times unsafe to visit. Stones as well as scoriæ are then erupted. A tremulous motion of the earth was distinctly felt just before the eruptions took place from the smaller vent.

COMPOSITION.—Describe the crater of Vesuvius in your own words.

Windsor Castle. 1839.

FUNERAL OF GEORGE THE THIRD.—*Charles Knight.*

See page 15.

THE funeral of George the Third appeared to me like the close of a long series of reminiscences. Windsor had to me been associated with the loud talk and the good-natured laugh of a portly gentleman with a star on his breast, whom I sometimes ran against in my childhood; with a venerable personage, blind, but cheerful, who sat erect on a led horse, as I have seen him in my youth; with the dim idea of my manhood, that in rooms of the Castle, which no curiosity could penetrate, there sat an old man with a long beard, bereft of every attribute of rank, who occasionally talked wildly, or threw himself about

frantically, and sometimes awoke recollections of happier days by striking a few chords on his piano.

Then came the final pageant. It was a poem rather than a show. The Lying-in State was something higher than undertaker's art. As I passed through St. George's Hall, I thought of the last display of regal pomp in that room—the Installation of 1805—when, at the banquet, the Sovereign stood up and pledged his knights, and the knights, in full cups of gold, invoked health and happiness on the Sovereign. The throne on which George the Third then sat was now covered with funeral draperies. I went on into the King's Guard-Chamber. The room was darkened—there was no light but that of the flickering wood-fires which burnt on an ancient hearth on each side. On the ground lay the beds on which the Yeomen of the Guard had slept during the night. They stood in their grand old dresses of state, with broad scarves of crape across their breasts, and crape on their halberds. As the red light of the burning brands

Windsor Castle in the 16th century.

gleamed on their rough faces, and glanced ever and anon upon the polished mail of the Black Prince, on the bruised armour of the soldiers of the Plantagenets, and on the matchlocks and bandoleers of the early days of modern warfare, some of the reality of the Present passed into visions of the Past. I thought of Edward of Windsor, the great builder of the Castle, deserted in his last moments. I thought of other "sad stories

of the deaths of kings." I came back to the immediate interest of the scene before me, by remembering that not one of the long line of English sovereigns before George the Third had died at Windsor.

I passed on into the chamber of death. All here was comparatively modern. The hangings of purple cloth which hid West's gaudy pictures of the Institution of the Order of the Garter; the waxlights on silver sconces; the pages standing by the side of the coffin; the Lord of the Bedchamber sitting at its head; much of this was upholstery work, and did not affect the imagination, except in connexion with the solemn silence,—a stillness unbroken, even when rustic feet, unused to tread on carpets, passed by the bier, awe-struck.

One such Royal Funeral as I had previously seen was not essentially different from another. The out-door ceremonial at the interment of George the Third was not readily to be forgotten. It was a walking procession. The night was dark and misty. Vast crowds were assembled in the Lower Ward of the Castle, hushed and expectant. A platform had been erected from the Grand Entrance of the Castle to the Western Entrance of St. George's Chapel. It was lined on each side by a single file of the Guards. A signal-rocket is fired. Every soldier lights a torch, and the massive towers and delicate pinnacles stand out in the red glare. Minute-guns are now heard in the distance. Will those startling voices never cease? Expectation is at its height. A flourish of trumpets is heard, and then the roll of muffled drums. A solemn dirge falls upon the ear, nearer and nearer. The funeral-car glides slowly along the platform without any perceptible aid from human or mechanical power. The dirge ceases for a little while; and then again the trumpets and the muffled drums sound alternately. Again the dirge—softly breathing flutes and clarionets mingling their notes with "the mellow horn"—and then a dead silence; for the final resting-place is reached. Heralds and banners and escutcheons touch not the heart. But the Music! That is something grander than the picturesque.

NOTES.—*An old man, &c.*—George III., before his death, was blind, mad, and stone deaf. *Edward of Windsor.*—Edward III. (1327—1377). *West, Benjamin.*—An American painter, who lived in England. Born, 1738; died, 1820. Famous in his day, less so since.

COMPOSITION.—Write out a list of all the words formed from the same roots as the first twelve verbs and twelve nouns.

THE WORLD'S AGE.—*Charles Kingsley.*

Who will say the world is dying?
Who will say our prime is past?
Sparks from Heaven, within us lying,
Flash, and will flash till the last.
Fools! who fancy Christ mistaken;
Man a tool to buy and sell;
Earth a failure, God-forsaken,
Ante-room of Hell.

Still the race of Hero-spirits
Pass the lamp from hand to hand;
Age from Age the Words inherits—
"Wife, and Child, and Fatherland."
Still the youthful hunter gathers
Fiery joy from wold and wood;
He will dare as dared his fathers,
Give him cause as good.

While a slave bewails his fetters;
While an orphan pleads in vain;
While an infant lisps his letters,
Heir of all the ages' gain;
While a lip grows ripe for kissing;
While a moan from man is wrung;
Know, by every want and blessing,
That the world is young.

SELF-EDUCATION.—*Charles Dickens.*

It was suggested by Mr. Babbage, in his ninth "Bridgewater Treatise," that a mere spoken word—a single articulated syllable thrown into the air—may go on reverberating through illimitable space for ever and for ever, seeing that there is no rim against which it can strike—no boundary at which it can possibly arrive. Similarly it may be said—not as an ingenious speculation, but as a steadfast and absolute fact—that human calculation cannot limit the influence of one atom of wholesome knowledge patiently acquired, modestly possessed, and faithfully used.

As the astronomers tell us that it is probable that there are

in the universe innumerable solar systems besides ours, to each of which myriads of utterly unknown and unseen stars belong, so it is certain that every man, however obscure, however far removed from the general recognition, is one of a group of men impressible for good, and impressible for evil, and that it is in the eternal nature of things, that he cannot really improve himself without in some degree improving other men.

And observe, this is especially the case when he has improved himself in the teeth of adverse circumstances, as in a maturity succeeding to a neglected or an ill-taught youth, in the few daily hours remaining to him after ten or twelve hours' labour, in the few pauses and intervals of a life of toil; for then his fellows and companions have assurance that he can have known no favouring conditions, and that they can do what he has done, in wresting some enlightenment and self-respect from what Lord Lytton finely calls—

> "Those twin gaolers of the daring heart,
> Low birth and iron fortune."

There are two poor brothers from near Chorley, who work from morning to night in a coal-pit, and who, in all weathers, have walked eight miles a night, three nights a-week, to attend the classes in which they have gained distinction. There are two poor boys from Bollington, who began life as piecers, at one shilling or eighteen-pence a-week, and the father of one of whom was cut to pieces by the machinery at which he worked, but not before he had himself founded the institution in which this son has since come to be taught. These two poor boys will appear before you to-night, to take the second-class prize in chemistry. There is a plasterer from Bury, sixteen years of age, who took a third-class certificate last year at the hands of Lord Brougham; he is this year again successful in a competition three times as severe. There is a wagon-maker from the same place, who knew little or absolutely nothing until he was a grown man, and who has learned all he knows, which is a great deal, in the local institution. There is a chain-maker, in very humble circumstances, and working hard all day, who walks six miles a-night, three times a-week, to attend the classes in which he has won so famous a place. There is a moulder in an iron foundry, who, whilst he was working twelve hours a day before the furnace, got up at four o'clock in the morning to learn drawing. "The thought of my lads," he writes in his modest account of himself, "in their peaceful slum-

bers above me, gave me fresh courage, and I used to think that if I should never receive any personal benefit, I might instruct them when they came to be of an age to understand the mighty machines and engines which have made our country, England, pre-eminent in the world's history." There is a piecer at mule-frames, who could not read at eighteen, who is now a man of little more than thirty, who is the sole support of an aged mother, who is arithmetical teacher in the institution in which he himself was taught, who writes of himself that he made the resolution never to take up a subject without keeping to it, and who has kept to it with such an astonishing will, that he is now well versed in Euclid and Algebra, and is the best French scholar in Stockport. The drawing-classes in that same Stockport are taught by a working blacksmith; and the pupils of that working blacksmith will receive the highest honours of to-night. Well may it be said of that good blacksmith, as it was written of another of his trade, by the American poet:

"Toiling, rejoicing, sorrowing,
Onward through life he goes;
Each morning sees some task begun,
Each evening sees its close.
Something attempted, something done,
Has earn'd a night's repose."

To pass from the successful candidates to the delegates from local societies now before me, and to content myself with one instance from amongst them. There is among their number a most remarkable man, whose history I have read with feelings that I could not adequately express under any circumstances, and least of all when I know he hears me, who worked when he was a mere baby, at hand-loom weaving, until he dropped from fatigue: who began to teach himself as soon as he could earn five shillings a-week: who is now a botanist, acquainted with every production of the Lancashire valley: who is a naturalist, and has made and preserved a collection of the eggs of British birds, and stuffed the birds: who is now a conchologist, with a very curious and in some respects an original collection of fresh-water shells, and has also preserved and collected the mosses of fresh-water and of the sea: who is worthily the president of his own local Literary Institution, and who was at his work this time last night as foreman in a mill.

COMPOSITION.—Relate in your own words the substance of the illustrations given in this Lesson of "Self-Education under Difficulty."

A DISSERTATION UPON ROAST PIG.—*Charles Lamb.*

See page 270.

MANKIND, says a Chinese manuscript, for the first seventy thousand ages ate their meat raw, clawing or biting it from the living animal, just as they do in Abyssinia to this day. The manuscript goes on to say, that the art of roasting, or rather broiling (which I take to be the elder brother), was accidentally discovered in the manner following:—

The swineherd, Ho-ti, having gone out into the wood one morning, as his manner was, to collect food for his hogs, left his cottage in the care of his eldest son, Bo-bo, a great lubberly boy, who, being fond of playing with fire, as younkers of his age commonly are, let some sparks escape into a bundle of straw, which, kindling quickly, spread the conflagration over every part of their poor mansion, till it was reduced to ashes. Together with the cottage (a sorry antediluvian makeshift of a building, you may think it), what was of much more importance, a fine litter of new-farrowed pigs, no less than nine in number, perished. China pigs have been esteemed a luxury all over the East, from the remotest periods that we read of. Bo-bo was in the utmost consternation, as you may think, not so much for the sake of the tenement, which his father and he could easily build up again with a few dry branches, and the labour of an hour or two, at any time, as for the loss of the pigs.

While he was thinking what he should say to his father, and wringing his hands over the smoking remnants of one of those untimely sufferers, an odour assailed his nostrils, unlike any scent which he had before experienced. What could it proceed from? Not from the burnt cottage—he had smelt that smell before—indeed this was by no means the first accident of the kind which had occurred through the negligence of this unlucky young firebrand. Much less did it resemble that of any known herb, weed, or flower. A premonitory moistening at the same time overflowed his nether lip. He knew not what to think. He next stooped down to feel the pig, if there were any signs of life in it. He burnt his fingers, and to cool them he applied them, in his booby fashion, to his mouth. Some of the crumbs of the scorched skin had come away with his fingers, and for the first time in his life (in the world's life, indeed, for before him no man had known it) he tasted—*crackling!* Again he felt and fumbled at the pig. It did not burn

him so much now, still he licked his fingers from a sort of habit. The truth at length broke into his slow understanding that it was the pig that smelt so, and the pig that tasted so delicious; and surrendering himself up to the new-born pleasure, he fell to tearing up whole handfuls of the scorched skin with the flesh next it, and was cramming it down his throat in his beastly fashion, when his sire entered amid the smoking rafters, armed with retributory cudgel, and finding how affairs stood, began to rain blows upon the young rogue's shoulders, as thick as hailstones, which Bo-bo heeded not any more than if they had been flies. The tickling pleasure, which he experienced in his lower regions, had rendered him quite callous to any inconveniences he might feel in those remote quarters. His father might lay on, but he could not beat him from his pig, till he had fairly made an end of it; when, becoming a little more sensible of his situation, something like the following dialogue ensued:—

"You graceless whelp, what have you got there devouring? Is it not enough that you have burnt me down three houses with your dog's tricks, and be hanged to you! but you must be eating fire, and I know not what—what have you got there, I say?"

"Oh, father, the pig—the pig! Do come and taste how nice the burnt pig eats!"

The ears of Ho-ti tingled with horror. He bewailed his hard fate that ever he should beget a son that should eat burnt pig.

Bo-bo, whose scent was wonderfully sharpened since morning, soon raked out another pig, and fairly rending it asunder, thrust the lesser half by main force into the fists of Ho-ti, still shouting out, "Eat, eat, eat the burnt pig, father; only taste! O my!" with such-like barbarous ejaculations, cramming all the while as if he would choke.

Ho-ti trembled in every joint while he grasped the abominable thing, wavering whether he should not put his son to death, for an unnatural young monster, when the crackling scorching his fingers as it had done his son's, and applying the same remedy to them, he, in his turn, tasted some of its flavour, which, make what sour mouths he would for a pretence, proved not altogether displeasing to him. In conclusion (for the manuscript here is a little tedious) both father and son fairly sat down to the mess, and never left off till they had despatched all that remained of the litter.

Bo-bo was strictly enjoined not to let the secret escape, for the neighbours would certainly have stoned them for a couple of abominable wretches, who could think of improving upon the good meat which God had sent them. Nevertheless, strange stories got about. It was observed that Ho-ti's cottage was burnt down now more frequently than ever. Nothing but fires from this time forward. Some would break out in broad day, others in the night-time. As often as the sow farrowed, so sure was the house of Ho-ti to be in a blaze; and Ho-ti himself, which was the more remarkable, instead of chastising his son, seemed to grow more indulgent to him than ever. At length they were watched, the terrible mystery discovered, and father and son summoned to take their trial at Pekin, then an inconsiderable assize-town. Evidence was given, the obnoxious food itself produced in court, and the verdict about to be pronounced, when the foreman of the jury begged that some of the burnt pig, of eating which the culprits stood accused, might be handed into the box. He handled it, and they all handled it; and burning their fingers as Bo-bo and his father had done before them, and nature prompting to each of them the same remedy, against the face of all the facts, and the clearest charge which judge had ever given—to the surprise of the whole Court, townsfolk, strangers, reporters, and all present—without leaving the box, or any manner of consultation whatever, they brought in a simultaneous verdict of Not Guilty.

The judge, who was a shrewd fellow, winked at the manifest iniquity of the decision; and, when the Court was dismissed, went privily and bought up all the pigs that could be had for love or money. In a few days his Lordship's town-house was observed to be on fire. The thing took wing, and now there was nothing to be seen but fire in every direction. Fuel and pigs grew enormously dear all over the district. The insurance offices one and all shut up shop. People built slighter and slighter every day, until it was feared that the very science of architecture would in no long time be lost to the world. Thus this custom of firing houses continued, till, in process of time, says my manuscript, a sage arose, like our Locke, who made a discovery that the flesh of swine, or indeed of any other animal, might be cooked (*burnt*, as they called it) without the necessity of consuming a whole house to dress it. Then first began the rude form of a gridiron. Roasting by the string, or spit, came in a century or two later—I forget in whose dynasty. By such slow degrees, concludes the manuscript, do the most

useful, and seemingly the most obvious, arts make their way among mankind.

Without placing too implicit faith on the account above given, it must be agreed, that if a worthy pretext for so dangerous an experiment as setting houses on fire (especially in these days) could be assigned in favour of any culinary object, that pretext and excuse might be found in ROAST PIG.

NOTE.—*Locke, John.*—A distinguished philosopher. Born at Wrington, near Bristol, 1632; died, 1704. He is best known now by his "Essay on the Human Understanding."

LIFE'S DECAY.—*Shakspere.*

This is the 73rd of Shakspere's sonnets.

THAT time of year thou may'st in me behold
When yellow leaves, or none, or few, do hang
Upon those boughs which shake against the cold,
Bare, ruin'd choirs, where late the sweet birds sang.
In me thou seest the twilight of such day
As after sunset fadeth in the west,
Which by and by black night doth take away,—
Death's second self, that seals up all in rest.
In me thou seest the glowing of such fire,
That on the ashes of his youth doth lie,
As the death-bed whereon it must expire,
Consum'd with that which it was nourish'd by.
This thou perceiv'st, which makes thy love more strong,
To love that well which thou must leave ere long.

LESSONS ON SPECIFIC SUBJECTS.

BOTANY.

1. All plants are divided into two great classes or series. I. The FLOWERING PLANTS. II. The FLOWERLESS PLANTS.

2. FLOWERLESS PLANTS do not bear real flowers, having Stamens and Pistils,* nor produce real seeds, or bodies having an embryo† ready formed in them. But they produce minute and very simple bodies which answer the purpose of seeds, and these are called *spores*, to distinguish them from true seeds. FERNS, MOSSES, and Liverworts, lichens, sea-weeds, and the mushroom family belong to this great class.

3. The FLOWERING PLANTS are divided into two great classes distinguishable by the stem, the leaves, the flower, and the embryo, or germ of the seed.

The first class is the Exogens,‡ or Dicotyledons.§ The second class contains the Endogens.‡

1. THE FLOWERLESS PLANTS.

1. The simplest forms of vegetation, which consist of a union of single cells, have been described and illustrated in the "Fifth Reader," p. 234, to which I refer you.

Most of the thread-like green vegetation you see in pools and brooks belongs to the humble plants which consist of a single row of cells. The Moulds or Mildew Fungi which grow on decaying organic matter, —such as bread-mould, or cheese-mould,—or feed on the juices of living plants and even of animals, also belong to this class. The potato disease is probably caused by a species of Mould; another kind is very fatal to silkworms, and a third parasitical Fungus has been the cause of the disastrous grape disease which has destroyed a great part of the vintage through Europe of late years. These plants consist of long and branching threads which penetrate and spread widely and rapidly through the vegetable or other body on which they live, and feed upon its juices. At length they break out upon the surface, and produce

* See "Fourth Reader," pp. 198, 199.
† See "Fourth Reader," p. 200.
‡ See "Fifth Reader," p. 241.
§ See "Fourth Reader," p. 200.

countless numbers of *spores*, or minute rudimentary cells, which are detached from the parent plant and serve the purpose of seeds.

2. When the cells multiply by forming partitions in two directions instead of only in one, we have a higher grade of vegetable life—the PLANTS OF A SINGLE LAYER OF CELLS. Some simple leaf-like sea-weeds are examples of this form of plant growth. (Figs. 75, 76.)

Fig. 75. Sea-weed (*Dictyota atomaria*).

When the whole body of such a plant is thus expanded, and leaf-like, it is called a FROND.

3. The next advance is when, instead of a single layer of cells, spreading out into a plant, we have PLANTS COMPOSED OF SEVERAL LAYERS OF CELLS, formed by the division of the cells, and their consequent multiplication, taking place in more than two directions. Sea-weeds, lichens, and other plants of the lowest order, forming in this way a tissue of cells, generally exhibit either leaf-like or stem-like shapes. (Fig. 77.)

But it is only when we come to the highest tribe of Liverworts, and to he true Mosses, that the familiar type of ordinary vegetation is realised,

in Plants with a stem, which shoot upwards from the soil, or whatever

Fig. 76. Sea-weed (*Fucus Nodosus*).

Fig. 77. Sea-weed (*Halidrys siliquosa*).

they may grow from, or creep along it; and grow onward from the

point of the stem, having it clothed symmetrically with distinct leaves as it advances. (Figs. 78, 79, 80, 81.)

Fig. 78. Star-headed Liverwort (*Marchantia Polymorpha*).

Fig. 79. Fringed Cup-moss (*Cladonia Fimbriata*).

4. All these lower vegetables, of whatever form, imbibe their food through any or every part of their surface, at least that of the freshly

formed parts. Their roots, when they have any, are usually intended to fix the plant to the rock or soil, rather than to draw nourishment from

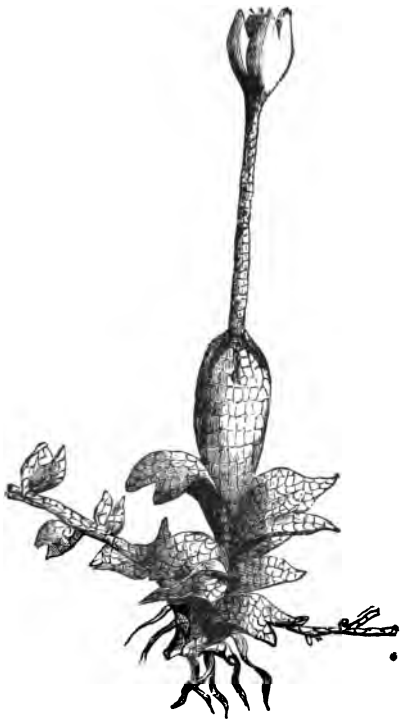


Fig. 80. Pear-shaped Scale-moss (*Jungermannia Turbinata*).

Fig. 81. Hair-moss (*Polytrichum*).

it, as in the case of the large sea-weeds of our coast (Fig. 82), which are merely holdfasts to bind the plants firmly to the rock on which they grow. Mosses also take in their nourishment through their whole expanded surface, and therefore, chiefly by the leaves, but the stems also shoot forth; from time to time, delicate rootlets, composed of slender cells which grow in a downward direction, and doubtless perform their part in absorbing moisture. A moss is, therefore, like an ordinary herb in miniature, and exhibits the three general organs of vegetation—a *root*, a *stem*, and *leaves*.

But while the Mosses seem like ordinary herbs and trees in vegetation and external appearance, they are the same as the lowest kind of

Fig. 82. False root of Sea-weed (*Laminaria*).

plants in the simplicity of their anatomical structure. They are entirely

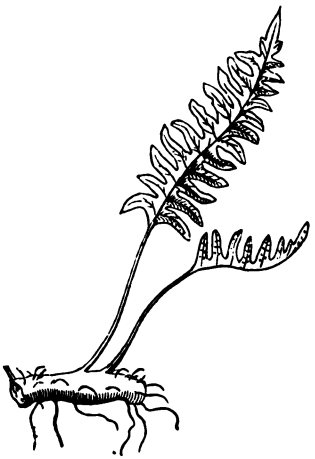


Fig. 83. Common Polypody Fern (*Polypodium Vulgare*).

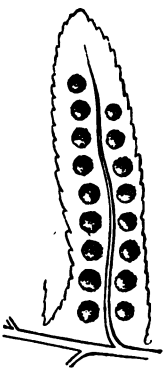


Fig. 84. Seed-vessels of ditto, on the back of the frond.

composed of cellular tissues, strictly so called, and have no distinct vessels or ducts, and no true wood in their composition. The Mosses, along

with the Algæ, Fungi, &c., were, therefore, called CELLULAR PL. De Candolle.*

5. All plants of a higher grade this great authority distinguished by name of VASCULAR† PLANTS, because vascular and woody tissues ente into their composition when they are herbs, as well as when they form shrubs or trees.

The strength which woody tissue imparts enables vascular plants to attain a large size, while mosses and other CELLULAR PLANTS are small, except when they live, like the sea-weeds, in water, which by supporting them, enables them to extend to any length. But although true mosses have no wood in their composition, yet the so-called Club mosses have. So also have the Ferns, the highest organised family of the lower grade of plants; and although these are mostly herbs, or plants with more or less woody stems creeping on or beneath the surface of the ground, yet in warm countries some species rise with woody trunks into tall and palm-like trees. But even these, like the humblest mosses, or the minutest moulds, spring from single cells or spores, and not from true seeds, and these spores are not produced by a flower.

Hence, plants of these lower grades are as a whole called FLOWERLESS or CRYPTOGAMOUS‡ plants, which, as has been already said, form one of the two great divisions of all plants—the other being the Flowering or Phanerogamous§ Plants, or those which bear true flowers, with stamens and pistils, and seeds in which is a living germ or plantlet.

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2. THE FLOWERING PLANTS.

GERMINATION.

1. The growth of a flowering plant from the germ—that is, its germination—may be illustrated from any of the plants which blossom round us. Let us examine it as shown in the common garden bean, and in Indian Corn or Maize.

The cuts on the next two pages represent both at the commencement of germination, or sprouting.

2. In the "Fourth Reader," p. 200, a description of the Embryo, or Germ, which is in all true seeds, is given. When you plant a bean the first sign of this germ waking into life is the appearance of a green point which shoots out and becomes the main root after a time. You see it in Figs. 85 and 86. It is the first offshoot from the embryo. A is a side view of the

* A great French botanist, born 1778, died 1841.

† From Latin, *vasculum*, a little vessel; hence, containing vessels, as veins, ducts, &c.

‡ From Greek, *kryptos*, concealed, *gamos*, marriage, meaning that their fructification is concealed.

§ From Greek, *phaneros*, open, and *gamos*, marriage.

bean, B is a side view of it with one of its seed leaves, or cotyledons * removed. These cotyledons are the food of the infant plant stored up for it, to supply its wants till it is able to draw nourishment from the air and earth for itself. In these two cuts *r* is the radicle, or root, *p* is the plumule, or bud which is the beginning of the stem, and will grow up between the cotyledons and at last break through the earth and develope into the growing stalk, with its leaves, &c.; *a* is only the point where one of the cotyledons has been cut off. You see how there was a germ in the bean from the first, which is only quickened and made to grow, by

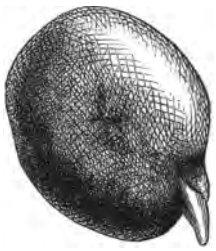


Fig. 85.

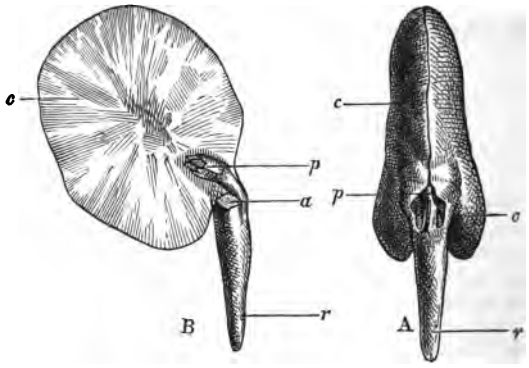


Fig. 86.

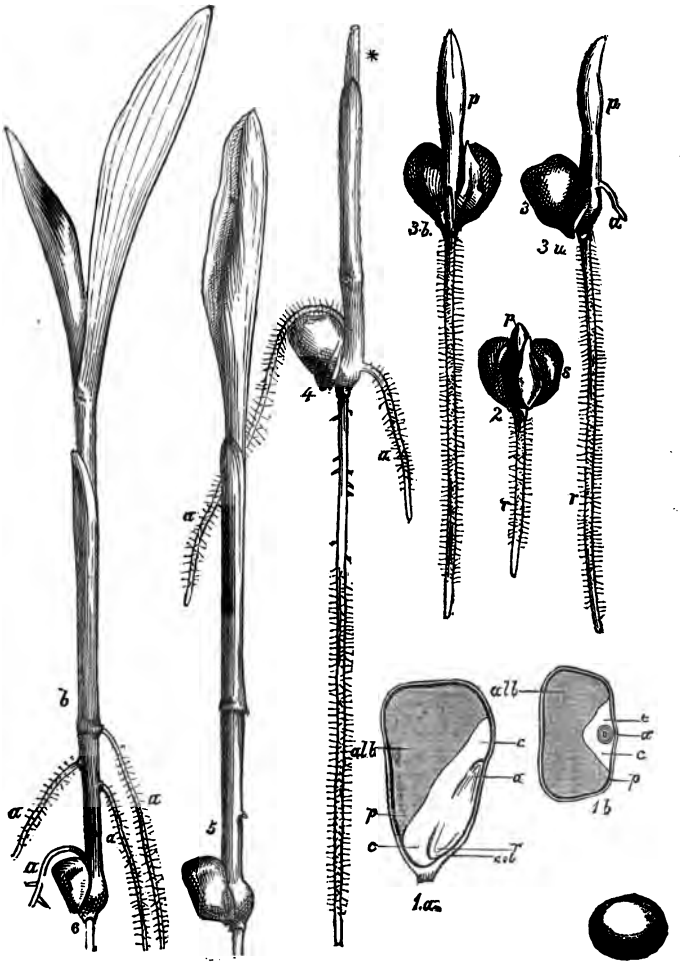
moisture, light, and heat. It is a true seed, bearing in it the embryo of a future plant, and supplying it with food while it is weak and tender.

3. A grain of Indian Corn shows the growth of a germ very strikingly. Here are five illustrations of it.

Let me explain the various parts of these. 1 is the dry grain of corn. You have often, no doubt, seen it. In 1 *a* this grain is cut through lengthwise; in 1 *b* it is cut across, so as to show the embryo within.

* Greek, *kotyledon*, a cup.

In these sections *p* is the skin or rind; *alb* is a store of albumen on which the young lant will live at first. *c*, *a*, *r*, *col*, are the embryo or germ



Figs. 87, 88, 89, 90 and 91.

of this future plant—the living plantlet, ready, when the sun, the rain, and the soil enable it, to break out as a plant of Indian Corn. Of these letters

c is the cotyledon, *a* is the plumule, or little feather which is to grow into the stem, &c. *r* is the young root. *col* is the root-sheath, through which the root will burst. Figures 2, 3, 4, 5 and 6, give the successive stages of germination. 3 *a* and 3 *b* are side and front views of the plant at the same stage. In all, *p* is the plumule; and *r* the radicle, or root. *a a* are irregular, or adventitious roots—as distinguished from the true root. *b* is the first leaf produced; the star, ×, is the first leaf which opens apart from the stem. S in No. 2 is the storehouse of albuminous food from which the germ draws its supply at first.

THE FORMATION OF FRUITS.

1. The FLOWER has been already described in the "Fourth Reader," p. 197; of the FRUIT of plants there are many varieties.

1. A SIMPLE FRUIT is a seed vessel formed by the ripening of one pistil, with whatever may have grown fast to it in the flower. Simple fruits are most conveniently classed as *Fleshy*, *Stone*, or *Dry Fruits*.

2. The principal sorts of *fleshy fruits* are the BERRY, the GOURD, and the APPLE forms.

3. A BERRY is fleshy or pulpy throughout. Grapes, tomatoes, goose-

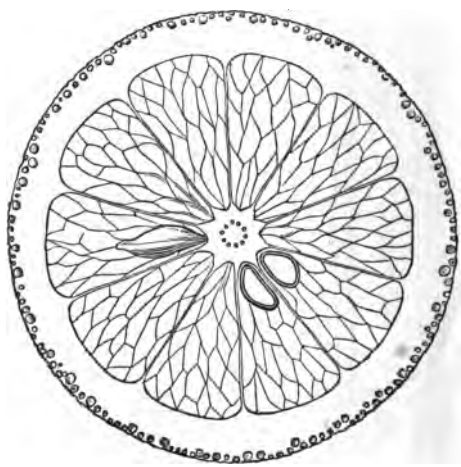


Fig. 92. Section of an Orange.

berries, currants, and cranberries are good examples. Oranges and lemons are only berries with a thicker and leathery rind.

The GOURD fruit is, in the same way, only a sort of berry with a harder

rind. The squash, the melon, cucumbers and the bottle-gourd, are examples of it.

A POME, or APPLE FRUIT, is the well-known fruit of the Apple, Pear,

Fig. 93. Pear Blossom.

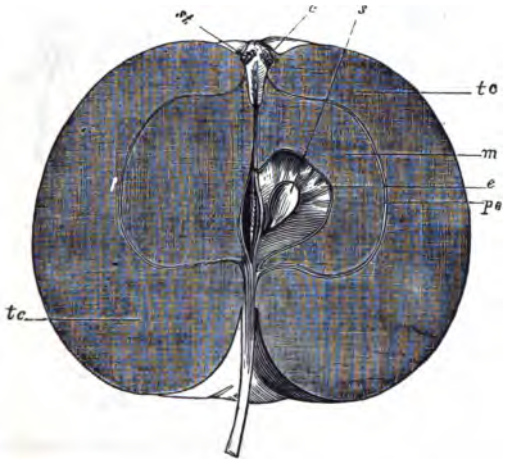


Fig. 94.

Quince and Hawthorn. It is formed from a flower in which a number of pistils (Fig. 93) growing in one are united with the Calyx or cup of the

flower, and this calyx, growing very thick and fleshy, makes the whole eatable part, or flesh, of the fruit. The real seed-vessels in the quince, apple, and the like, consist of the five thin parchment-like cells of the core, containing the seeds. But in the pear and apple the flesh of the *core*, namely all inside the circle of greenish dots seen on cutting the fruit across, belongs to the *Receptacle** of the flower which here rises so as

Fig. 95. A species of Poppy. *p* peduncle, *r* receptacle, from which the flower rises, *f*, the fruit.

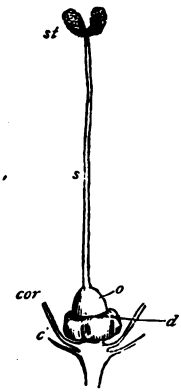


Fig. 96.

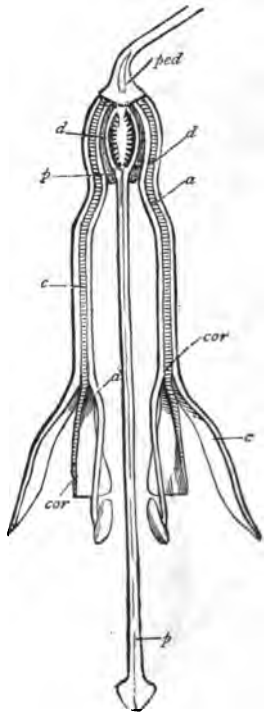


Fig. 97.

to surround the real seed-vessels. Cutting the apple lengthwise these dots appear as slender greenish lines, separating what belongs to the core from what belongs to the calyx. They are the vessels which in the blossom belong to the petals and to the stamens above.

* Tip of the flower stalk from which the parts of a flower spring.

We give an illustration of the parts of a flower to recall them to mind (Fig. 96). It is the bindweed. *c*, calyx. *cor*, corolla. *d*, disk, a cup-shaped elevation in this case, surrounding the base of the ovary, *o*. *s*, style. *st*, stigma. Fig. 97 shows how the different parts of a flower often grow together. It is a fuchsia. *pp*, pistil. *d*, disk. *a*, *a*, stamens. *cor*, corolla. *c*, calyx. *ped*, peduncle.

4. In the HAW the cells become thick and stony, and so form a kind of STONE FRUIT, or DRUPE (Fig. 98). Plums, cherries and peaches are

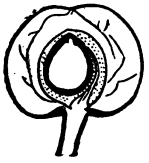


Fig. 98. Cherry.

Fig. 99. Acorn, or nut of the oak.

Fig. 100. Fruit of the Crowfoot.

familiar examples of stone-fruit. The stone does not belong to the seed but to the fruit. It has the seed in it, with coats of its own.

5. DRY FRUITS are those that ripen without flesh or pulp. They are of

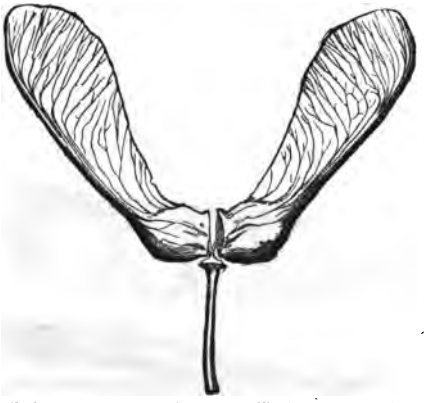


Fig. 101. A grain of Indian Corn.

Fig. 102. Fruit of the Maple.

two classes—the one bursting open and scattering their seeds, the other keeping them till the seeds grow, or the seed-vessel decays.

Of the FIRST CLASS, which do not burst open, the NUT is an example.

Beechnuts, chestnuts and acorns (Fig. 99), are familiar examples. The ACHENE fruits, or the dry one-seeded, closed, small fruits, which are generally mistaken for naked seeds, are a second kind of this class of dry fruits (Fig. 100). The GRAIN is a third variety. Indian corn, wheat, &c., are examples. In the ACHENE the seed is found whole within; but, in the GRAIN, when the outer coating is cut, the covering of the grain adheres to the seed-vessel within (Fig. 101). KEY fruits are such as those of the ash, elm, maple, &c. These form the fourth variety. (Fig. 102.)

6. The SECOND CLASS of dry fruits—those which burst open and scatter their seeds—take the common name of PODS. Of these there are the following kinds:—

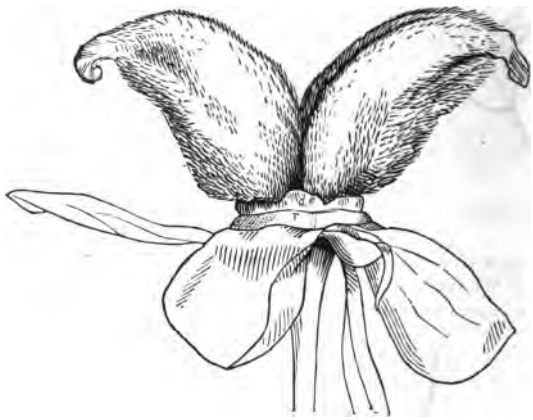
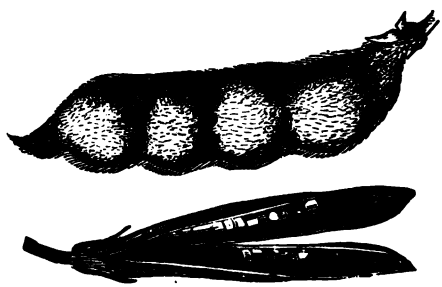


Fig. 103. Follicles of the Peony.



Figs. 104 and 105. Legumes of the Lupine and Lotus.

1. A FOLLICLE, which is a simple pod, opening down one side only, as in the peony.

2. A LEGUME, which splits into two pieces. The pea and the lupine are examples.

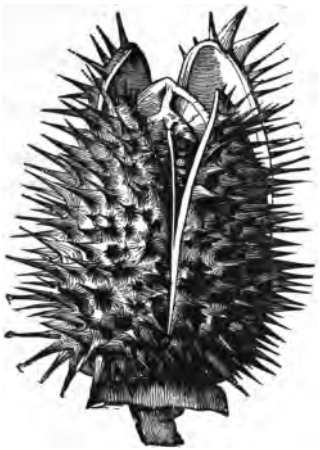


Fig. 106.

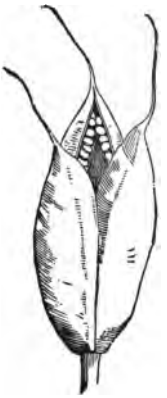


Fig. 107.

3. A CAPSULE, of which the thorn apple (Fig. 106) or the meadow saffron (Fig. 107) offer examples.

4. Some capsules have special names.

Fig. 108.
Silique of the Celandine.

Fig. 109.
Silicle of the Shepherd's Purse.

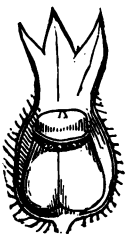


Fig. 110.
Pyxis of the Henbane.

(1) A silique. This form of capsule is slender and splits into two pieces, leaving a partition which bears the seeds. (Fig. 108.)

(2) A silicle, or pouch, is only a silique not much longer than it is broad. (Fig. 109.)

(3) A pyxis, which is a pod opening crosswise, the top separating like a lid. (Fig. 110.)

Some other kinds of compound fruits are classed under various names. They are:—

1. AGGREGATED FRUITS, which are clusters of simple fruits all of the same flower. The raspberry and the blackberry are examples.

2. ACCESSORY FRUITS are those on which the flesh or conspicuous part belongs to some added or altered part, separate from the seed-vessel. A rose-hip is an example of this variety—so is a strawberry. The strawberry is only the *receptacle* of the flower, or the end of the flower-stalk, grown very large and juicy, and not a seed-vessel at all. The fruit consists of the little yellow specks which cover this body.

Fig. 111. Strawberry.

3. MULTIPLE FRUITS are masses of accessory fruits belonging to different flowers, all compacted together. The fir-cone, the pine-apple, and the mulberry are examples.

Thus, under the name of fruit, very different things are eaten. In figs it is a hollow flower stalk; in pineapples and mulberries, clusters of flower leaves, as well as the stalks they cover; in strawberries, the receptacle of a flower; in blackberries, the same, though smaller, and a cluster of little stone fruits that cover it; in raspberries, the little stone-fruits in a cluster, without the receptacle. In quinces, and, as to all but the core in apples and pears, we eat a fleshy enlarged calyx; in peaches and other stone-fruits, the outer part of a seed-vessel; in grapes, gooseberries, cranberries, &c., the whole seed-vessel, grown rich and pulpy.

Julius Cæsar.

JULIUS CÆSAR.—*Shakspere.*

INTRODUCTORY NOTE.—Shakspere's tragedy of *Julius Cæsar* embraces the period from the festival of the Lupercalia, 13th February, B.C. 44, to the battle of Philippi in (October?) B.C. 42. Cæsar had returned from Spain in October, 45 B.C., and had been appointed Consul for the next ten years, and Dictator for life.

Rome had for centuries been divided into two parties—the Patricians and the Plebs, that is, the nobles and the people. Though in name a Republic it had always, in reality, been an Oligarchy. A small governing class of noble families shared the higher offices of the State among them. With the vast increase of national wealth, which began with the conquest of Macedon (B.C. 168) and Greece (B.C. 146), and the fall of Carthage, in the latter year, the citizens of Rome had become more and more corrupt. Elections to the highest offices were gained only by those who could bribe most heavily, and this corruption paved the way for a political change, which would concentrate authority in the single hand of a leader of the one party or the other, the nobles or the people. Tiberius Gracchus (B.C. 133), and his brother Caius (B.C. 128—121), as Tribunes of the people, had headed the popular party in their day. Then came Marius, seven times Consul, a rough soldier, in whose later days the rivalry of the two parties broke out in the first Civil War, which ended, four years after his death, in 82 B.C., in the defeat of his party and the ferocious dictatorship of Sylla, the head of the nobility. Pompey the Great succeeded to Sylla's leadership, but a new leader of the people was now at hand—Julius Cæsar, the nephew of Julia, wife of Marius. Step by step, from the year 67 B.C. to the 6th June, B.C. 48, when he utterly crushed Pompey at the battle of Pharsalia, Cæsar steadily set himself to overthrow the Patrician and raise the Marian, or popular, party, once more. When Pompey fell, Cæsar thus became "the foremost man in all the world," and gradually attained imperial dignity, in all but the name.

The defeated nobility, or Tories as we might call them, were not willing to

surrender their power finally, without a struggle. It was determined to murder Cæsar, who stood in their way, and to cover the shame and danger of such a crime by professions of zeal for liberty, the only liberty for which they cared being that of their high-born party. The people were nothing in their eyes; they themselves, only, were Rome.

The conspirators were headed by M. Junius Brutus, the nephew of Cato, a young man, whom Cæsar had treated almost like a son, and whose father had been put to death in cold blood by Pompey, the head of the Patricians. The time fixed for the murder was the 15th March, B.C. 44.

ACT III. SCENE I.

Cæsar has just been murdered, in the Senate House, by Casca, Brutus and other conspirators. While they are still there Antony enters.

Brutus. Welcome, Mark Antony.

Antony. O mighty Cæsar! dost thou lie so low?
Are all thy conquests, glories, triumphs, spoils,
Shrunk to this little measure?—Fare thee well.—
I know not, gentlemen, what you intend,
Who else must be let blood, who else is rank:
If I myself, there is no hour so fit
As Cæsar's death hour; nor no instrument
Of half that worth as those your swords, made rich
With the most noble blood of all this world.
I do beseech ye, if you bear me hard,
Now, whilst your purpled hands do reek and smoke,
Fulfil your pleasure. Live a thousand years,
I shall not find myself so apt to die:
No place will please me so, no mean of death,
As here by Cæsar, and by you cut off,
The choice and master spirits of this age.

Bru. O Antony! beg not your death of us.
Though now we must appear bloody and cruel,
As, by our hands and this our present act,
You see we do; yet see you but our hands,
And this the bleeding business they have done:
Our hearts you see not, they are pitiful;
And pity to the general wrong of Rome
(As fire drives out fire, so pity, pity)
Hath done this deed on Cæsar. For your part,
To you our swords have leaden points, Mark Antony:
Our arms, in strength of malice, and our hearts,
Of brothers' temper, do receive you in
With all kind love, good thoughts, and reverence.

Casca. Your voice shall be as strong as any man's
In the disposing of new dignities.

Bru. Only be patient, till we have appeas'd
The multitude, beside themselves with fear;

And then we will deliver you the cause,
Why I, that did love Cæsar when I struck him,
Have thus proceeded.
Ant. I doubt not of your wisdom.
Let each man render me his bloody hand:
First, Marcus Brutus, will I shake with you;

Antony over Cæsar's dead body.

Next, Caius Cassius, do I take your hand;
Now, Decius Brutus, yours;—now yours, Metellus;
Yours, Cinna;—and, my valiant Casca, yours;—
Though last, not least in love, yours, good Trebonius.
Gentlemen all,—alas! what shall I say?
My credit now stands on such slippery ground,

That one of two bad ways you must conceit me,
Either a coward or a flatterer.—
That I did love thee, Cæsar, O, 'tis true:
If then thy spirit look upon us now,
Shall it not grieve thee, dearer than thy death,
To see thy Antony making his peace,
Shaking the bloody fingers of thy foes,
Most noble! in the presence of thy corse?
Had I as many eyes as thou hast wounds,
Weeping as fast as they stream forth thy blood,
It would become me better than to close
In terms of friendship with thine enemies.
Pardon me, Julius! Here wast thou bay'd, brave hart;
Here didst thou fall; and here thy hunters stand,
Sign'd in thy spoil, and crimson'd in thy lethe.
O World! thou wast the forest to this hart;
And this indeed, O World! the heart of thee.—
How like a deer, stricken by many princes,
Dost thou here lie!

Cas. Mark Antony,——

Ant. Pardon me, Caius Cassius;
The enemies of Cæsar shall say this;
Then in a friend it is cold modesty.

Cas. I blame you not for praising Cæsar so;
But what compact mean you to have with us?
Will you be prick'd in number of our friends;
Or shall we on, and not depend on you?

Ant. Therefore I took your hands; but was, indeed,
Sway'd from the point, by looking down on Cæsar.
Friends am I with you all, and love you all;
Upon this hope, that you shall give me reasons
Why and wherein Cæsar was dangerous.

Bru. Or else were this a savage spectacle.
Our reasons are so full of good regard,
That were you, Antony, the son of Cæsar,
You should be satisfied.

Ant. That's all I seek:
And am moreover suitor that I may
Produce his body to the market-place;
And in the pulpit, as becomes a friend,
Speak in the order of his funeral.

Bru. You shall, Mark Antony.

Cas. Brutus, a word with you.
You know not what you do: do not consent [*Aside.*

That Antony speak in his funeral:
Know you how much the people may be moved
By that which he will utter?
Bru. By your pardon;—
I will myself into the pulpit first,
And show the reason of our Cæsar's death:
What Antony shall speak, I will protest
He speaks by leave and by permission;
And that we are contented Cæsar shall
Have all true rites and lawful ceremonies.
It shall advantage more than do us wrong.
Cas. I know not what may fall; I like it not.
Bru. Mark Antony, here, take you Cæsar's body.
You shall not in your funeral speech blame us,
But speak all good you can devise of Cæsar,
And say you do 't by our permission;
Else shall you not have any hand at all
About his funeral: and you shall speak
In the same pulpit whereto I am going,
After my speech is ended.
Ant. Be it so;
I do desire no more.
Bru. Prepare the body then, and follow us.

[*Exeunt all but* ANTONY.

Ant. O, pardon me, thou bleeding piece of earth,
That I am meek and gentle with these butchers!
Thou art the ruins of the noblest man
That ever lived in the tide of times.
Woe to the hand that shed this costly blood!
Over thy wounds now do I prophesy,—
Which, like dumb mouths, do ope their ruby lips,
To beg the voice and utterance of my tongue:—
A curse shall light upon the limbs of men;
Domestic fury, and fierce civil strife
Shall cumber all the parts of Italy:
Blood and destruction shall be so in use,
And dreadful objects so familiar,
That mothers shall but smile when they behold
Their infants quartered with the hands of war;
All pity choked with custom of fell deeds:
And Cæsar's spirit, ranging for revenge,
With Até by his side, come hot from hell,
Shall in these confines with a monarch's voice
Cry "Havoc," and let slip the dogs of war;

That this foul deed shall smell above the earth
With carrion men groaning for burial.

Enter a Servant.

You serve Octavius Cæsar, do you not?
Serv. I do, Mark Antony.
Ant. Cæsar did write for him to come to Rome.
Serv. He did receive his letters, and is coming;
And bid me say to you by word of mouth—
O Cæsar!— [*Seeing the body.*
Ant. Thy heart is big, get thee apart and weep.
Passion, I see, is catching: for mine eyes,
Seeing those beads of sorrow stand in thine,
Began to water. Is thy master coming?
Serv. He lies to-night within seven leagues of Rome.
Ant. Post back with speed, and tell him what hath chanced:
Here is a mourning Rome, a dangerous Rome,
No Rome of safety for Octavius yet:
Hie hence, and tell him so. Yet, stay a while;
Thou shalt not back till I have borne this corse
Into the market-place: there shall I try,
In my oration, how the people take
The cruel issue of these bloody men;
According to the which, thou shalt discourse
To young Octavius of the state of things.
Lend me your hand. [*Exeunt with* CÆSAR'S *body.*

SCENE II.

SCENE.—*The Forum.*

Enter BRUTUS *and* CASSIUS, *and a throng of* Citizens.

Cit. We will be satisfied; let us be satisfied.
Bru. Then follow me, and give me audience, friends.—
Cassius, go you into the other street,
And part the numbers.—
Those that will hear me speak, let them stay here;
Those that will follow Cassius, go with him;
And public reasons shall be rendered
Of Cæsar's death.
1*st Cit.* I will hear Brutus speak.
2*nd Cit.* I will hear Cassius; and compare their reasons,
When severally we hear them rendered.
[*Exit* CASSIUS, *with some of the* Citizens. BRUTUS *goes into the Rostrum.*

3rd Cit. The noble Brutus is ascended: Silence.

Bru. Be patient till the last.

Romans, countrymen, and lovers! hear me for my cause; and be silent, that you may hear: believe me for mine honour; and have respect to mine honour, that you may believe: censure me in your wisdom; and awake your senses, that you may the better judge. If there be any in this assembly, any dear friend of Cæsar's, to him I say, that Brutus' love to Cæsar was no less than his. If then that friend demand why Brutus rose against Cæsar, this is my answer,—Not that I loved Cæsar less, but that I loved

The Forum.

Rome more. Had you rather Cæsar were living, and die all slaves; than that Cæsar were dead, to live all free men? As Cæsar loved me, I weep for him; as he was fortunate, I rejoice at it; as he was valiant, I honour him: but, as he was ambitious, I slew him. There are tears for his love; joy for his fortune; honour for his valour; and death for his ambition. Who is here so base, that would be a bondman? If any, speak; for him have I offended. Who is here so rude, that would not be a Roman? If any, speak; for him have I offended. Who is here so vile, that

will not love his country? If any, speak; for him have I offended. I pause for a reply.

Cit. None, Brutus, none. [*Several speaking at once.*

Bru. Then none have I offended. I have done no more to Cæsar than you shall do to Brutus. The question of his death is enrolled in the Capitol: his glory not extenuated, wherein he was worthy; nor his offences enforced, for which he suffered death. Here comes his body, mourned by Mark Antony; who, though

Street in Rome leading to the Capitol.

he had no hand in his death, shall receive the benefit of his dying, a place in the commonwealth,—As which of you shall not? With this I depart:—That as I slew my best lover for the good of Rome, I have the same dagger for myself, when it shall please my country to need my death. [*Enter* ANTONY *and others, with* CÆSAR'S *body.*

All. Live, Brutus! live, live!

1*st Cit.* Bring him with triumph home unto his house.

2*nd Cit.* Give him a statue with his ancestors.

3*rd Cit.* Let him be Cæsar.

4th Cit. Cæsar's better parts
Shall be crowned in Brutus.
1st Cit. We'll bring him to his house
With shouts and clamours.
Bru. My countrymen,——
2nd Cit. Peace, silence! Brutus speaks.
1st Cit. Peace, ho!
Bru. Good countrymen, let me depart alone,
And, for my sake, stay here with Antony:
Do grace to Cæsar's corpse, and grace his speech
Tending to Cæsar's glories; which Mark Antony,
By our permission, is allowed to make.
I do entreat you, not a man depart,
Save I alone, till Antony have spoke. [*Exit.*
1st Cit. Stay, ho! and let us hear Mark Antony.
3rd Cit. Let him go up into the public chair;
We'll hear him. Noble Antony, go up.
Ant. For Brutus' sake, I am beholding to you.
4th Cit. What does he say of Brutus?
3rd Cit. He says, for Brutus' sake,
He finds himself beholding to us all.
4th Cit. 'Twere best he speak no harm of Brutus here.
1st Cit. This Cæsar was a tyrant.
3rd Cit. Nay, that's certain:
We are bless'd that Rome is rid of him.
2nd Cit. Peace! let us hear what Antony can say.
Ant. You gentle Romans,——
Cit. Peace, ho! let us hear him.
Ant. Friends, Romans, countrymen! lend me your ears;
I come to bury Cæsar, not to praise him.
The evil that men do lives after them;
The good is oft interred with their bones;
So let it be with Cæsar. The noble Brutus
Hath told you Cæsar was ambitious:
If it were so, it was a grievous fault;
And grievously hath Cæsar answer'd it.
Here, under leave of Brutus and the rest,
(For Brutus is an honourable man;
So are they all, all honourable men;)
Come I to speak in Cæsar's funeral.
He was my friend, faithful and just to me:
But Brutus says, he was ambitious;
And Brutus is an honourable man.
He hath brought many captives home to Rome,

Whose ransoms did the general coffers fill:
Did this in Cæsar seem ambitious?
When that the poor have cried, Cæsar hath wept:
Ambition should be made of sterner stuff:
Yet Brutus says, he was ambitious;
And Brutus is an honourable man.
You all did see, that on the Lupercal
I thrice presented him a kingly crown,
Which he did thrice refuse. Was this ambition?
Yet Brutus says, he was ambitious;

Restoration of the Temple of Pallas, supposed to have been part of the Forum of Nerva.

And, sure, he is an honourable man.
I speak not to disprove what Brutus spoke,
But here I am to speak what I do know.
You all did love him once, not without cause;
What cause withholds you then to mourn for him?
O judgment, thou art fled to brutish beasts,
And men have lost their reason!—Bear with me;
My heart is in the coffin there with Cæsar,
And I must pause till it come back to me.

1st Cit. Methinks there is much reason in his sayings.

2nd Cit. If thou consider rightly of the matter,
Cæsar has had great wrong.
3rd Cit. Has he, masters?
I fear there will a worse come in his place.
4th Cit. Mark'd ye his words? He would not take the crown;
Therefore 'tis certain he was not ambitious.
1st Cit. If it be found so, some will dear abide it.
2nd Cit. Poor soul! his eyes are red as fire with weeping.
3rd Cit. There's not a nobler man in Rome than Antony.
4th Cit. Now mark him, he begins again to speak.
Ant. But yesterday, the word of Cæsar might
Have stood against the world: now lies he there,
And none so poor to do him reverence.
O masters! if I were disposed to stir
Your hearts and minds to mutiny and rage,
I should do Brutus wrong, and Cassius wrong,
Who, you all know, are honourable men:
I will not do them wrong; I rather choose
To wrong the dead, to wrong myself and you,
Than I will wrong such honourable men.
But here's a parchment, with the seal of Cæsar;
I found it in his closet, 'tis his will:
Let but the commons hear this testament,
(Which, pardon me, I do not mean to read,)
And they would go and kiss dead Cæsar's wounds,
And dip their napkins in his sacred blood;
Yea, beg a hair of him for memory,
And, dying, mention it within their wills,
Bequeathing it, as a rich legacy
Unto their issue.
4th Cit. We'll hear the will: Read it, Mark Antony.
Cit. The will, the will! we will hear Cæsar's will.
Ant. Have patience, gentle friends, I must not read it;
It is not meet you know how Cæsar loved you.
You are not wood, you are not stones, but men;
And, being men, hearing the will of Cæsar,
It will inflame you, it will make you mad:
'Tis good you know not that you are his heirs;
For if you should, O, what would come of it!
4th Cit. Read the will; we'll hear it, Antony:
You shall read us the will, Cæsar's will.
Ant. Will you be patient? will you stay a while?
I have o'ershot myself, to tell you of it:

I fear I wrong the honourable men
Whose daggers have stabbed Cæsar; I do fear it.
4th Cit. They were traitors: Honourable men!
All. The will! the testament!
2nd Cit. They were villains, murderers: the will! read the will!
Ant. You will compel me, then, to read the will?
Then make a ring about the corpse of Cæsar,
And let me show you him that made the will.
Shall I descend? and will you give me leave?
Several Cits. Come down.
2nd Cit. Descend.
3rd Cit. You shall have leave. [*Antony comes down.*
4th Cit. A ring; stand round.
1st Cit. Stand from the hearse, stand from the body.
2nd Cit. Room for Antony;—most noble Antony.
Ant. Nay, press not so upon me; stand far off.
Several Cits. Stand back! room! bear back!
Ant. If you have tears, prepare to shed them now.
You all do know this mantle: I remember
The first time ever Cæsar put it on;
'Twas on a summer's evening, in his tent;
That day he overcame the Nervii:—
Look! in this place ran Cassius' dagger through:
See what a rent the envious Casca made:
Through this, the well-beloved Brutus stabbed;
And as he plucked his cursed steel away,
Mark how the blood of Cæsar followed it,
As rushing out of doors, to be resolved
If Brutus so unkindly knocked, or no;
For Brutus, as you know, was Cæsar's angel:
Judge, O you gods, how dearly Cæsar loved him!
This was the most unkindest cut of all:
For when the noble Cæsar saw him stab,
Ingratitude, more strong than traitors' arms,
Quite vanquished him: then burst his mighty heart;
And, in his mantle muffling up his face,
Even at the base of Pompey's statue,
Which all the while ran blood, great Cæsar fell.
O, what a fall was there, my countrymen!
Then I, and you, and all of us fell down,
Whilst bloody treason flourished over us.
O, now you weep; and, I perceive, you feel
The dint of pity: these are gracious drops.
Kind souls, what! weep you when you but behold

Our Cæsar's vesture wounded? Look you here,
Here is himself, marred, as you see, with traitors.
1st Cit. O piteous spectacle!
2nd Cit. O noble Cæsar!
3rd Cit. O woful day!
4th Cit. O traitors, villains!
1st Cit. O most bloody sight!
All. We will be revenged. Revenge! About! Seek! Burn!
Fire! Kill! Slay! Let not a traitor live!
Ant. Stay, countrymen.
1st Cit. Peace there! Hear the noble Antony.
2nd Cit. We'll hear him, we'll follow him, we'll die with him.
Ant. Good friends, sweet friends, let me not stir you up
To such a sudden flood of mutiny.
They that have done this deed are honourable:
What private griefs they have, alas, I know not,
That made them do it: they are wise and honourable,
And will, no doubt, with reasons answer you.
I come not, friends, to steal away your hearts;
I am no orator, as Brutus is;
But, as you know me all, a plain blunt man,
That love my friend; and that they know full well
That gave me public leave to speak of him.
For I have neither wit, nor words, nor worth,
Action, nor utterance, nor the power of speech,
To stir men's blood: I only speak right on;
I tell you that which you yourselves do know;
Show you sweet Cæsar's wounds, poor, poor dumb mouths,
And bid them speak for me: But were I Brutus,
And Brutus Antony, there were an Antony
Would ruffle up your spirits, and put a tongue
In every wound of Cæsar, that should move
The stones of Rome to rise and mutiny.
All. We'll mutiny.
1st Cit. We'll burn the house of Brutus.
3rd Cit. Away, then! come, seek the conspirators.
Ant. Yet hear me, countrymen; yet hear me speak.
All. Peace, ho! Hear Antony, most noble Antony!
Ant. Why, friends, you go to do you know not what:
Wherein hath Cæsar thus deserved your loves?
Alas, you know not—I must tell you, then:—
You have forgot the will I told you of.
All. Most true; the will: let's stay, and hear the will.
Ant. Here is the will, and under Cæsar's seal.

To every Roman citizen he gives,
To every several man, seventy-five drachmas.
2nd Cit. Most noble Cæsar!—we'll revenge his death.
3rd Cit. O royal Cæsar!
Ant. Hear me with patience.
All. Peace, ho!
Ant. Moreover, he hath left you all his walks,
His private arbours, and new-planted orchards,
On this side Tiber; he hath left them you,
And to your heirs for ever; common pleasures,
To walk abroad, and recreate yourselves.
Here was a Cæsar! When comes such another?
1st Cit. Never, never! Come, away, away!
We'll burn his body in the holy place,
And with the brands fire the traitors' houses.
Take up the body. [*Exeunt* Citizens *with the body.*
Ant. Now let it work. Mischief, thou art afoot,
Take thou what course thou wilt!

Enter a Servant.

How now, fellow?
Serv. Sir, Octavius is already come to Rome.
Ant. Where is he?
Serv. He and Lepidus are at Cæsar's house.
Ant. And thither will I straight to visit him:
He comes upon a wish. Fortune is merry,
And in this mood will give us any thing.
Serv. I heard him say, Brutus and Cassius
Are rid like madmen through the gates of Rome. . . . .

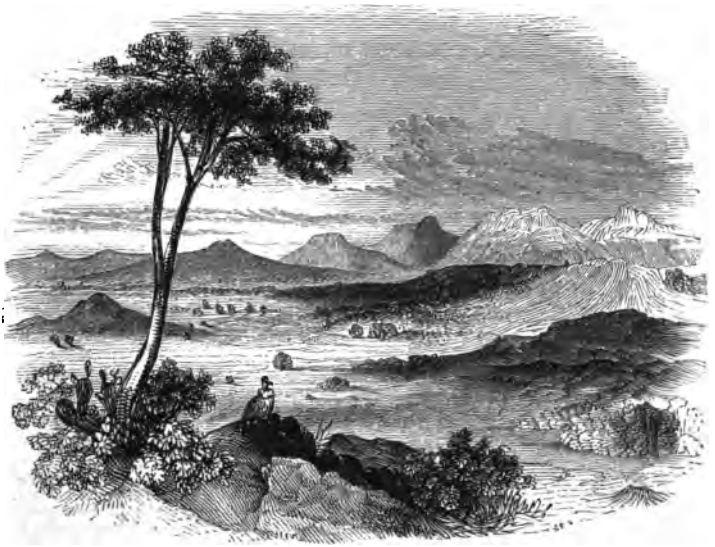
ACT IV. SCENE III.

Antony, Octavius, and Lepidus, assumed the government of Rome. Brutus and Cassius, who had fled to their Provinces, levied forces to make war on the triumvirate.

SCENE.—*Tent of* BRUTUS *in the Camp near Sardis.*

Bru. What do you think
Of marching to Philippi presently?
Cas. I do not think it good.
Bru. Your reason?
Cas. This it is:
'Tis better that the enemy seek us:
So shall he waste his means, weary his soldiers,
Doing himself offence; whilst we, lying still,
Are full of rest, defence, and nimbleness.

Bru. Good reasons must, of force, give place to better.
The people 'twixt Philippi and this ground
Do stand but in a forced affection;
For they have grudged us contribution:
The enemy, marching along by them,
By them shall make a fuller number up,
Come on refreshed, new-added, and encouraged;
From which advantage shall we cut him off,
If at Philippi we do face him there,
These people at our back.



Plain of Philippi.

Cas. Hear me, good brother.
Bru. Under your pardon. You must note beside,
That we have tried the utmost of our friends,
Our legions are brim-full, our cause is ripe:
The enemy increaseth every day;
We, at the height, are ready to decline.
There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows and in miseries.

On such a full sea are we now afloat;
And we must take the current when it serves,
Or lose our ventures.
Cas. Then, with your will, go on;
We'll along ourselves, and meet them at Philippi.
Bru. The deep of night is crept upon our talk,
And nature must obey necessity;
Which we will niggard with a little rest.
There is no more to say?
Cas. No more. Good-night:
Early to-morrow will we rise, and hence . . .

ACT V. SCENE V.

Antony, speaking of Brutus, after his death.

Ant. This was the noblest Roman of them all:
All the conspirators save only he
Did that they did in envy of great Cæsar;
He only, in a general honest thought
And common good to all, made one of them.
His life was gentle, and the elements
So mixed in him that Nature might stand up
And say to all the world "This was a man!"
Oct. According to his virtue let us use him,
With all respect and rites of burial.
Within my tent his bones to-night shall lie,
Most like a soldier, ordered honourably.
So call the field to rest; and let's away,
To part the glories of this happy day.

NOTES.— Act III. Sc. 1.— *Brutus M. Junius*—Born B.C. 89.—Nephew of Cato, who was his political model, though Brutus, unlike him, was moral. Cato was a relentless enemy of the popular party and its leaders, and a devoted partisan of the senatorial oligarchy. He committed suicide at Utica after the defeat of his party by Cæsar at Thapsus, in Africa (B.C. 47). *Antony, Mark.*—A friend and lieutenant of Cæsar's. After Pharsalia he was appointed to rule the eastern part of the Empire, but finally came to a rupture with Octavianus (Augustus), and stabbed himself (30 B.C.) after being defeated by him at Actium, Sept. 2, B.C. 31. He deserted his fleet before the battle and fled with Cleopatra to Egypt, to which Augustus followed him the next year. *Rank.*—Of too luxuriant growth; needing to be cut down. *Mean.*—Manner. *Strength of malice.*—This line is evidently corrupt; for *malice* some such word as *friendship* seems needed. *Temper.*—Due mixture of different qualities. *Caius Cassius.*—A Roman noble, at one time opposed to Cæsar in the Civil War, but afterwards reconciled to him and treated with the greatest kindness by him. He had been general, tribune of the people, &c., before this, but Cæsar made him his legate or deputy. Yet he was the author of the conspiracy to murder his benefactor. He pretended that love of country and of liberty were his motives, but this was mere pretext. He acted as he did from personal hatred and ambition. After the murder he commanded at Philippi with Brutus, and, when defeated, killed himself. *Decius Brutus*—was of another family from Marcus Brutus. He had always been in the service of Cæsar, who had unbounded confidence in him and had loaded him

with favour. He had been admiral, and was promised a governorship and the consulate. He was selected to lure Cæsar to the Senate-house on the day of the murder. On his victim's will being opened it was found that he was appointed one of his heirs! Brutus was put to death in Gaul, B.C. 43, by order of Antony. *Metellus.*—More correctly *L. Tillius Cimber.* One of the warmest supporters of Cæsar when he first became supreme. He received in return the governorship of the province of Bithynia, but joined the conspirators notwithstanding. On the day of the murder Cimber was foremost, on pretence of presenting a petition to Cæsar. Being motioned away, he seized the Dictator's gown with both hands and drew it over his neck, so as to hamper his hands and to pull him forward. He was a bold, lewd man. *Cinna.*—Son of a noble who had been proscribed by Sylla. Cæsar, however, cancelled the decree against the father and thus opened the way to honours for the son. He did not join the conspirators, but approved of their act. *Casca.*—The conspirator who aimed the first thrust at Cæsar. *Trebonius.*—At first one of the aristocratic party, Trebonius, in 55 B.C., changed sides and joined the popular party, for which he was made by Cæsar one of his legates in Gaul. In B.C. 94 he returned to Rome. In 45 B.C. Cæsar raised him to the Consulship, and promised him the province of Asia after the expiry of his year of office. Yet Trebonius was one of the prime movers in Cæsar's murder. Antony's calling him "good Trebonius" was a keen thrust at his ingratitude. His part was to keep Antony in conversation outside the Senate-house while the murder was being effected within. Trebonius was himself murdered in bed, next year, in Smyrna by command of Antony. *Bay'd.*—Brought to bay. *Signed,* &c.—The allusion is to the old custom of huntsmen decking themselves out in the hide and antlers of the slaughtered deer, and dipping their hands in its blood. *Lethe.*—Death. *Prick'd.*—Chosen, by making a hole with a pen opposite the name. Shakspere makes Cassius a keen, wary, bad man; he paints Brutus, on the other hand, as a simple, easily-led man, acting from principle, however mistaken. It is to be noted that *Marcus Brutus* is made the special friend of Cæsar, and the most unlikely to conspire against him, when it should have been *Decius Brutus. Limbs of men.*—Evidently a corruption. Perhaps *tombs* should be read or *lives. Até.*—One of the Furies of Grecian Mythology. She avenged evil deeds, and punished their perpetrators and their posterity. *Cry "Havoc,"* &c.—A metaphor from letting loose hunting dogs on their prey to tear it. So shall Cæsar's spirit cry to the avenging armies and let them loose on the cities of men. *Carrion men.*—Putrid bodies of men slain in these awful wars. *Octavius Cæsar.*—Afterwards the Emperor Augustus. He was born B.C. 63, and was the nephew of Julius Cæsar, that is, his sister's son. He was a cold, cautious, heartless man, capable of any crime, but smooth, dissimulating, and crafty, so that he could wear a mask of virtue when it suited best. He was nineteen when Cæsar was murdered, and after fifteen years' war and crime, having crushed all his rivals, gained supremacy as Imperator or Emperor in the year B.C. 29. He died A.D. 14, at the age of seventy-six, and was succeeded by his adopted son Tiberius. Octavius was stationed as cavalry general at Apollonia, in Illyricum (now Albania), on the other side of the Adriatic, opposite the *heel* of Italy, when the news of Cæsar's murder reached him. Scene 2.—*Question.*—Reasons for. *Capitol.*—A temple, built originally by Tarquinius Superbus, on the Saturnian Hill in Rome, and dedicated to Jupiter, Juno, and Minerva. The part of the hill on which it stood was called ever after the CAPITOL, or Chief Place.—The original temple was burned B.C. 82, but it had been restored. It was the sacred treasure-house for the national trophies; senatorial acts, &c., were recorded in it. *Extenuated* (L. *ex,* and *tenuo,* to make thin).—Lessened, depreciated. *Enforced.*—Stated with exaggeration. *Public chair.*—The Rostrum or Rostra (from *rostrum,* the beak of a ship) was the stage erected in the Forum for orators who wished to address the people. It got its name, "the Beaks," from having been originally adorned with the beaks of vessels taken in war. *Lupercal.*—A very ancient Roman festival, held yearly on the 15th February, in the *Lupercal,* where Romulus and Remus were said to have been suckled by a she-wolf. It was in honour of the god of fertility, Lupercus. *Kingly crown.*—The Romans had a great dislike of kings, and one of the great charges against Cæsar was that he wished to become king. The Emperors did not, for centuries after Augustus, wear crowns. *The Nervii.*—The most warlike of the Belgic tribes. Their territory was near the river Sambre, in what is now the north-eastern corner of France. The Nervii surprised Cæsar, and nearly overwhelmed him, but in the end they were routed so utterly that only 500 fighting men remained in the state out of 60,000. This was in the year B.C. 57. Cæsar's bravery in this great battle had been very conspicuous. *Pompey's statue.*—Set up in the Forum. *Dint.*—Stroke. *Drachma.*—The principal Greek silver coin, of the value of 1*s.* 1*d.* The Romans reckoned in sesterii, but Shakspere took his incidents from Plutarch

(born A.D. 48), who, as a Greek, and writing in Greek, used the word *drachma*. *Lepidus*.—One of Cæsar's lieutenants, and with Octavianus and Antony, a member of the Triumvirate established after Cæsar's murder. Act IV., Scene 3.—*Philippi*.—The battle of Philippi was fought in the autumn of B.C. 42, more than two years after Cæsar's murder. Brutus and Cassius had fled, the former to Macedonia, the latter to Syria, and had raised each an army. At Philippi they joined forces, but there was no union between them except that of temporary necessity. Act V., Scene 5.—Brutus and Cassius were each in turn defeated in two battles at Philippi, the one battle being fought about twenty days after the other. Both perished by their own hand. The passage given is Antony's panegyric on Brutus when he comes upon his dead body on the field of battle.—As to *Julius Cæsar*, the splendour of his abilities, and of his success, must not be allowed to veil the hatefulness of his character in many of its aspects. While often kind, magnanimous, forgiving, and generous, there was no cruelty and no crime to which he did not stoop, if his selfish ambition counselled it. He was a man utterly without principle, ready to flatter, or benefit, or betray, or murder, as his interests required. But the age in which he lived was utterly profligate and immoral; and hateful as he was in many respects, he was a better man than most of his contemporaries.

Medal of M. Junius Brutus.

THOUGHTS FROM JEAN PAUL.

LIFE is like the Polar lands, which, cold and colourless, and without flower or living creature, yet have over them a wondrous night after the dreary day—a night in which the heavens dower the earth, and the polar light fills immensity with radiant glory, reminding man of how much lies beyond this world.

When the Sublime appears in nature—the Storm—the Thunder—the Starry Sky—the spectacle of Death: then speak the word GOD to the child. A great misfortune, a time of joy, a deed of wrong, an act of goodness, if rightly used, are spots where you may set up for the child the Wilderness Tabernacle of God.

THE BATTLES OF CRESSY AND POITIERS.

Dean Stanley.

It was Saturday, the 28th of August, 1346, and it was at four in the afternoon that the battle commenced. The French army advanced from the south-east, after a hard day's march to overtake the retiring enemy. Every one, from the King down to the peasants on the road, went crying "Kill, kill!" and were in a state of the greatest excitement, drawing their swords, and thinking they were sure of their prey. What the French King chiefly relied upon (besides his great numbers) was the troop of fifteen thousand cross-bowmen from Genoa. These were made to stand in front: when, just as the engagement was about to take place, one of those extraordinary incidents occurred, which often turn the fate of battles, as they do of human life in general. A tremendous storm gathered from the west, and broke in thunder, and rain, and hail, on the field of battle. The sky was darkened and the horror was increased by the hoarse cries of crows, and ravens, which fluttered before the storm, and struck terror into the hearts of the Italian bowmen, who were unaccustomed to these northern tempests. And when at last the sky had cleared, and they prepared their cross-bows to shoot, the strings had been so wet by the rain that they could not draw them. By this time the evening sun streamed out in full splendour over the black clouds of the western sky—right in their faces; and at the same moment the English archers, who had kept their bows in cases during the storm, and so had their strings dry, let fly their arrows so fast and thick, that those who were present could only compare it to snow or sleet. Through and through the heads, and necks, and hands of the Genoese bowmen, the arrows pierced. Unable to stand it, they turned and fled; and from that moment the panic and confusion was so great, that the day was lost.

But though the storm, and the sun, and the archers had their part, we must not forget the Prince. He was, we must remember, only sixteen, and yet he commanded the whole English army. It is said that the reason of this was, that the King of France had been so bent on destroying the English forces, that he had hoisted the Sacred Banner of France—the great scarlet flag, embroidered with golden lilies, called the Oriflamme—as a sign that no quarter would be given; and that when King Edward saw this, and saw the hazard to which he should expose not only the army, but the whole kingdom, if he were to

fall in battle, he determined to leave it to his son. Certain it is that, for whatever reason, he remained on a little hill, on the outskirts of the field, and the young Prince, who had been knighted a month before, went forward with his companions in arms, into the very thick of the fray; and when his father saw that the victory was virtually gained, he forbore to interfere. "Let the child *win his spurs*," he said, in words which have since become a proverb, "and *let the day be his*." The Prince was in very great danger at one moment; he was wounded and thrown to the ground, and only saved by Richard de Beaumont, who carried the great banner of Wales, throwing the banner over the boy as he lay on the ground, and standing upon it till he had driven back the assailants. The assailants were driven back, and far through the long summer evening, and deep into the summer night, the battle raged. It was not till all was dark, that the Prince and his companions halted from their pursuit; and then huge fires and torches were lit up, that the King might see where they were. And then took place the touching interview between the father and the son; the King embracing the boy in front of the whole army, by the red light of the blazing fires, and saying, "Sweet son, God give you good perseverance; you are my true son—right royally have you acquitted yourself this day, and worthy are you of a crown,"—and the young Prince, after the reverential manner of those times, "bowed to the ground, and gave all the honour to the King his father." The next day the King walked over the field of carnage with the Prince, and said, "What think you of a battle? is it an agreeable game?"

The general result of the battle was the deliverance of the English army from a most imminent danger, and subsequently the conquest of Calais, which the King immediately besieged and won, and which remained in the possession of the English from that day to the reign of Queen Mary. From that time the Prince became the darling of the English, and the terror of the French; and, whether from this terror, or from the black armour which he wore on that day, and which contrasted with the fairness of his complexion, he was called by them "Le Prince Noir,"—the Black Prince, and from them the name has passed to us; so that all his other sounding titles by which the old poems call him—"Prince of Wales, Duke of Aquitaine,"—are lost in the one memorable name which he won for himself in his first fight at Cressy.

And now we pass over ten years, and find him on the field of

Poitiers. Again we must ask, what brought him there, and why the battle was fought? He was this time alone; his father, though the war had rolled on since the battle of Cressy, was in England. But, in other respects, the beginning of the fight was very like that of Cressy. Gascony belonged to him by right, and from this he made a descent into the neighbouring provinces, and was on his return home, when the King of France—John, the son of Philip—pursued him as his father had pursued Edward III., and overtook him suddenly on the high upland fields, which extend for many miles south of the city of Poitiers. It is the third great battle which has been fought in that neighbourhood,—the first was that in which Clovis defeated the Goths, and established the faith in the creed of Athanasius throughout Europe—the second was that in which Charles Martel drove back the Saracens, and saved Europe from Mahometanism—the third was this, the most brilliant of English victories over the French. The spot, which is about six miles south of Poitiers, is still known by the name of the Battle-field. Its features are very slightly marked—two ridges of rising ground, parted by a gentle hollow; behind the highest of these two ridges is a large tract of copse and underwood, and leading up to it from the hollow is a somewhat steep lane, there shut in by woods and vines on each side. It was on this ridge that the Prince had taken up his position, and it was solely by the good use he made of this position that the victory was won. The French army was arranged on the other side of the hollow in three great divisions, of which the King's was the hindmost. It was on Monday, September 19th, 1356, at nine A.M., that the battle began. All the Sunday had been taken up by fruitless endeavours of Cardinal Talleyrand to save the bloodshed, by bringing the King and Prince to terms; a fact to be noticed for two reasons, first because it shows the sincere and Christian desire which animated the clergy of those times, in the midst of all their faults, to promote peace and goodwill amongst the savage men with whom they lived; and secondly because the refusal of the French King and Prince to be persuaded shows, on this occasion, the confidence of victory which had possessed them.

The Prince offered to give up all the castles and prisoners he had taken, and to swear not to fight in France again for seven years. But the King would hear of nothing but his absolute surrender of himself and his army on the spot. The Cardinal laboured till the very last moment, and then rode back to

Poitiers, having equally offended both parties. The story of the battle, if we remember the position of the armies, is told in a moment. The Prince remained firm in his position; the French charged with their usual chivalrous ardour—charged up the lane; the English archers, whom the Prince had stationed behind the hedges at each side, let fly their showers of arrows, as at Cressy; in an instant the lane was choked with the dead; and the first check of such headstrong confidence was fatal. The Prince in his turn charged; a general panic seized the whole French army; the first and second division fled in the wildest confusion; the third alone, where King John stood, made a gallant resistance; the King was taken prisoner, and by noon the whole was over. Up to the gates of the town of Poitiers, the French army fled and fell, and their dead bodies were buried by heaps within a convent which still remains in the city. It was a wonderful day. It was eight thousand to sixty thousand; the Prince who had gained the battle was still only twenty-six, that is, a year younger than Napoleon at the beginning of his campaigns, and the battle was distinguished from all others by the number, not of the slain but of the prisoners—one Englishman often taking four or five Frenchmen.

Perhaps, however, the best known part of the whole is the scene where the King first met the Prince in the evening, which cannot be better described than by old Froissart:—

"The day of the battle at night, the Prince gave a supper in his lodgings to the French King, and to most of the great lords that were prisoners. The Prince caused the King and his son to sit at one table, and other lords, knights, and squires at the others; and the Prince always served the King very humbly, and would not sit at the King's table, although he requested him—he said he was not qualified to sit at the table with so great a prince as the King was. Then he said to the King, 'Sir, for God's sake make no bad cheer; though your will was not accomplished this day. For, sir, the King, my father, will certainly bestow on you as much honour and friendship as he can, and will agree with you so reasonably that you shall ever after be friends; and, sir, I think you ought to rejoice, though the battle be not as you will, for you have this day gained the high honour of prowess, and have surpassed all others on your side in valour. Sir, I say not this in raillery, for all our party, who saw every man's deeds, agree in this, and give you the palm and chaplet.'

"Therewith the Frenchmen whispered among themselves

that the Prince had spoken nobly, and that most probably he would prove a great hero, if God preserved his life, to persevere in such good fortune."

BEFORE SUNRISE IN THE VALE OF CHAMOUNI.

Samuel Taylor Coleridge.

Besides the rivers Arvé and Arveiron, which have their sources in the foot of Mont Blanc, five conspicuous torrents rush down its sides; and within a few paces of the Glaciers, the Gentiana Major grows in immense numbers, with its "flowers of loveliest blue."

HAST thou a charm to stay the morning-star
In his steep course? So long he seems to pause
On thy bald awful head, O sovran Blanc!
The Arvé and Arveiron at thy base
Rave ceaselessly; but thou, most awful Form!
Risest from forth thy silent sea of pines
How silently! Around thee and above
Deep is the air and dark, substantial, black,
An ebon mass: methinks thou piercest it,
As with a wedge! But when I look again,
It is thine own calm home, thy crystal shrine,
Thy habitation from eternity!
O dread and silent Mount! I gazed upon thee,
Till thou, still present to the bodily sense,
Didst vanish from my thought: entranced in prayer
I worshipped the Invisible alone.

Yet, like some sweet beguiling melody,
So sweet, we know not we are listening to it,
Thou, the meanwhile, wast blending with my thoughts,
Yea, with my life, and life's own secret joy:
Till the dilating Soul, enrapt, transfused,
Into the mighty vision passing—there
As in her natural form, swelled vast to Heaven!

Awake, my soul! not only passive praise
Thou owest! not alone these swelling tears,
Mute thanks and secret ecstasy! Awake,
Voice of sweet song! Awake, my Heart, awake!
Green vales and icy cliffs, all join my Hymn.

Thou first and chief, sole sovran of the Vale!
O struggling with the darkness all the night,

And visited all night by troops of stars,
Or when they climb the sky, or when they sink:
Companion of the morning star at dawn,
Thyself Earth's rosy star, and of the dawn
Co-herald! wake, O wake, and utter praise!
Who sank thy sunless pillars deep in Earth?
Who filled thy countenance with rosy light?
Who made thee parent of perpetual streams?

And you, ye five wild torrents fiercely glad!
Who called you forth from night and utter death,
From dark and icy caverns called you forth,
Down those precipitous, black, jagged rocks,
For ever shattered and the same for ever?
Who gave you your invulnerable life,
Your strength, your speed, your fury, and your joy,
Unceasing thunder and eternal foam?
And who commanded (and the silence came),
"Here let the billows stiffen and have rest?"

Ye ice-falls! ye that from the mountain's brow
Adown enormous ravines slope amain—
Torrents, methinks, that heard a mighty voice,
And stopped at once amid their maddest plunge!
Motionless torrents! silent cataracts!
Who made you glorious as the gates of heaven,
Beneath the keen full moon? Who bade the sun
Clothe you with rainbows? Who, with living flowers
Of loveliest blue, spread garments at your feet?—
God! let the torrents, like a shout of nations,
Answer! and let the ice-plains echo, God!
God! sing, ye meadow streams, with gladsome voice!
Ye pine-groves, with your soft and soul-like sounds!
And they too have a voice, yon piles of snow,
And in their perilous fall shall thunder—God!

Ye living flowers that skirt the eternal frost!
Ye wild goats sporting round the eagle's nest!
Ye eagles, playmates of the mountain storm!
Ye lightnings, the dread arrows of the clouds!
Ye signs and wonders of the element!
Utter forth God, and fill the hills with praise!

Thou too, hoar Mount! with thy sky-pointing peaks,
Oft from whose feet, the avalanche, unheard,

Shoots downward, glittering through the pure serene
Into the depth of clouds that veil thy breast—
Thou too again, stupendous Mountain! thou
That as I raise my head, awhile bowed low
In adoration, upward from thy base
Slow travelling, with dim eyes suffused with tears,
Solemnly seemest, like a vapoury cloud,
To rise before me—Rise, O ever rise,
Rise like a cloud of incense, from the Earth!
Thou kingly Spirit throned among the hills,
Thou dread ambassador from Earth to Heaven,
Great hierarch! tell thou the silent sky,
And tell the stars, and tell yon rising sun,
Earth, with her thousand voices, praises God.

EDUCATION.—*Addison.*

I CONSIDER a human soul without education like marble in the quarry, which shows none of its inherent beauties until the skill of the polisher fetches out the colours, makes the surface shine, and discovers every ornamental cloud, spot, and vein that runs through the body of it. Education, after the same manner, when it works upon a noble mind, draws out to view every latent virtue and perfection, which without such helps are never able to make their appearance.

If my reader will give me leave to change the allusion so soon upon him, I shall make use of the same instance to illustrate the force of education, which Aristotle has brought to explain his doctrine of substantial forms, when he tells us that a statue lies hid in a block of marble, and that the art of the statuary only clears away the superfluous matter, and removes the rubbish. The figure is in the stone, the sculptor only finds it. What the sculptor is to a block of marble, education is to a human soul. The philosopher, the saint, or the hero, the wise, the good, or the great man, very often lie hid and concealed in a plebeian, which a proper education might have disinterred, and have brought to light.

THE NIGHT COMETH, WHEN NO MAN CAN WORK.

LESSONS ON THE ENGLISH LANGUAGE.

1. The number of words in our fullest English dictionaries is not much below one hundred thousand; but this includes the technical words used in science and art. The number in every-day use is not, however, half so great. It is reckoned that Richardson and Webster's dictionaries contain about forty-five thousand.

2. The different sources from which these words are derived have been thus estimated by Archbishop Trench:—"Suppose the English language to be divided into a hundred parts; of these, to make a rough distribution, sixty would be Saxon, thirty would be Latin (including, of course, the Latin which has come to us through the French), and five would be Greek. We should then have assigned ninety-five parts, leaving the other five, perhaps too large a residue, to be divided among all the other languages from which we have adopted isolated words."*

3. The earliest language spoken in England in historical times was the Celtic, of which Welsh is still the surviving memorial. The Celtic was the language of the ancient Britons.

Its influence on the English language of the present day is a question on which opinions widely differ—some scholars limiting the number of Celtic words in our language to a very few; others claiming a far larger share. The ancient Britons were for more than four hundred years in contact with their Roman masters while England was a Roman province, and thus, no doubt, adopted many Latin words into their own language from them; and they were afterwards for centuries in contact with the Old English, or "Anglo-Saxons," partly in more honourable, but mostly in subordinate relations, as the humbler classes and slaves of the community. A large number of Celtic words must thus have been introduced into Old English, and, on the other hand, not a few adopted from Old English into Celtic.

4. It is impossible to speak with accuracy or completeness on a subject so complicated, and, as yet, so slightly explored by scholars; but the following words may be taken as at least an illustration of our indebtedness to our British forefathers.

Celtic Words Adopted into English.

1. Basket, barrow, button, bran, broider (to *embroider*), bill (a *hatchet*), cabin, quay, cobble (*a boat*), clout, knob, crock, crockery, cock (*boat*), gusset, kiln, dainty, darn, tenter, fleam, flaw, flasket (Yorkshire—a *pail*), frieze, funnel, garter, gyve, griddle, gruel, wain,

* "English, Past and Present," p. 7.

wall, welt, wicket, flannel, flip, gown, wire, hackle (*for dressing flax*), hem, housing (*of a saddle*), lath, locker, flummery (*jelly of oatmeal*), mesh, mattock, mop, pail, pan, park, peck, pellet, pitcher, pottage, rail (*a fence*), rasher, ridge, drill, rim, rug, solder, sough (*of the wind*), size (*glue*), tackle, tassel, drill, balderdash, bug, bugbear, bully, kick, knock, goblin, crouch, cower, cut (*lot*), cull, whap (*stroke*), twaddle, fudge, grumble, wed, goal, harlot, hoyden, hog, lick (*to beat*), lad, lass, matter (*pus*), muggy, nudge, paunch, pitch, pose, puzzle, puck, bump, pimple, task, dock (*to cut short*), toss, trip, trudge, tartan, plaid, kilt, clan, reel, fetters, coat, cart, pranks, hap (*chance*), happy, pert, sham.

5. It was natural that the British names of places should be adopted by invading races, and hence we find them retained in many cases. Thus:—

ABER, the mouth of a river (sometimes contracted into BER, or even AR).
CAER, a fort or town (sometimes contracted into CAR).
DUN, a hill, or fort on a hill. (Our word *Downs* is a corruption of this.)
LIN, a deep pool (sometimes LINN or LYNN).
LLAN, a church (sometimes LANN).
TRE, a town (sometimes TRY).
BEN, or PEN, a mountain.
BLAIR, a field cleared of wood.
BOTTOM, a valley.
BRAE, a hilly slope.
CAIRN, a heap of stones, a rocky hill.
COMB, or COMP, a deep valley.
CRAIG, CARRICK, or CRICK, a craggy hill.
CUL, the back part.
GLEN, a narrow valley.
KILL, a cell, chapel, or burying-ground (sometimes CIL).
KIN, KEN, or CHIN, a head of land.
INCH, or ENNIS, an island.
ROS, a peninsula.
STRATH, a broad valley.

EXERCISES.

1. Write one or more essays in which the Celtic words in the first list are introduced. Each Celtic word is to be underlined in the essay.

2. Give names of places in England, Ireland, or Scotland illustrative of the second list.

II.—1. The OLD ENGLISH, or ANGLO-SAXON as it is wrongly called, was introduced into England by the German tribes who began to settle in our country in the fifth century, and gradually came in such numbers as to drive back the ancient British race, in great part, to the west of the island, and take its place as the people of England.

I have passed over, in the meantime, the words we got from the Romans during their rule in Britain, because it will be better to treat the whole subject of Latin words at a later point.

The old English is not so much an element of our language as the foundation of it—the cloth of the robe, as it were, on which all words from other sources are only embroidered. The Articles, Pronouns, Conjunctions, Prepositions, Numerals, Auxiliary Verbs—that is, all the smaller words which bind sentences together—are Saxon. The grammatical structure of the language is equally so.

2. Old English words include most of those dear to us in daily life or in most frequent use. The words for our relations and friends—*father, mother, husband, wife, son, daughter, brother, sister, home, kindred, friends,* are English. So also are such home words as *hearth, roof, fireside, tears, smiles, blushes, laughing, weeping, sighing,* and *groaning.*

The words we use most naturally for things around us in nature, and for its common phenomena are, in the same way, English; as, for example, the words *sun, moon, stars, fire, earth, water, day, night, morning, evening, twilight, noon, midnight, sunset, sunrise, light, heat, cold, frost, snow, hail, rain, sleet, thunder, lightning.*

The *hill, dale, woods, streams, land,* and *sea* are English.

So are our *horses, dogs, cows, calves,* and *pigs,* and our *beef, veal,* and *pork.*

Our bodily actions are mostly described by English words. We *sit* and *stand, lie, walk, run, leap, stagger, stride, slide, glide, yawn, gape, wink, fly, swim, creep, crawl.*

The parts of our body are also mostly English—our *arms, legs, hands, eyes, mouth, ears, nose,* and so on.

3. The English people remained still the mass of the nation after the Norman conquest, for the Normans did not come in families, and fill the land with their own race, but as soldiers, who soon intermarried with the English, and themselves became, as it were, part of them. Hence the words of common business life remain English. We *sell* and *buy;* things are *dear* or *cheap;* we *plough* and *sow;* we grow *rich* and *poor.*

In short, as I shall show you by-and-by, the homely language of the heart, of the eye, and of daily life in all its varieties, remained English, while the prouder or more lordly part of the language was, for the time, borrowed from the haughty Norman conquerors.

4. A striking illustration of the fact that English is the great ruling element in our language is seen in the fact that you may write on almost any subject in ordinary affairs without using any other than English words; but you could not do this with words in use among us from any other language. Thus, in the following passage from the Bible, the only words not English are marked with italics:—

"And they made ready the *present* against *Joseph* came at noon: for they heard that they should eat bread there. And when *Joseph* came home, they brought him the *present* which was in their hand into the house, and bowed themselves to him to the earth. And he asked them of their welfare, and said, Is your father well, the old man of whom ye

spake? Is he yet alive? And they answered, Thy *servant*, our father, is in good health: he is yet alive. And they bowed down their heads, and made *obeisance*. And he lifted up his eyes, and saw his brother *Benjamin*, his mother's son, and said, Is this your younger brother, of whom ye spake unto me? And he said, God be *gracious* unto thee, my son" (Gen. xliii. 25—29).

5. In the New Testament, the first, fourth, and seventeenth chapters of St. John's Gospel have only four words in the hundred that are not of English origin. You could not do better than try to pick out the exceptions, taking a few verses a day till you have examined the three chapters thoroughly.

Our greatest writers are marked by nothing more strikingly than the large proportion of purely English words they use. Thus the number of these in a hundred words used in lengthened passages is as follows in the authors named:—Chaucer, 88 to 93; Spenser, 86; Shakspere, 88 to 91; Milton, 80 to 90; Tennyson, 87 to 89; Ruskin, 73 to 84.

In the following lines from Byron, all the words are purely English, except the two in italics:—

> For the *Angel* of Death spread his wings on the blast,
> And breathed in the *face* of the foe as he passed;
> And the eyes of the sleepers waxed deadly and chill,
> And their hearts but once heaved, and for ever grew still.
> And there lay the steed with his nostril all wide,
> But through it there rolled not the breath of his pride;
> And the foam of his gasping lay white on the turf,
> And cold as the spray of the rock-beating surf.

6. To help you to know which are pure English words study the following rules:—

1. The articles, pronouns, conjunctions and prepositions, as a rule, are Saxon, that is, English.

So also are the following:—

2. Adjectives with irregular comparison; as—good, better; bad, worse, &c.
3. Irregular and defective verbs; as—*have, go, am.*
4. Auxiliary verbs; as—*shall, will, may, can, do, have, must.*
5. Words which change their vowels in words formed from them—
   1. Words formed from ADJECTIVES, such as—OLD, *elder*; STRONG, *strength*; LONG, *length*; BROAD, *breadth.*
   2. Words formed from VERBS—BLESS, *bliss*; KNIT, *knot, net*; SIT, *seat*; FALL, *fell*; HOLD, *held*; SLAY, *slew*; FLY, *flew*; TAKE, *took*; GIVE, *gave*; RISE, *rose*; LIE, *lay*; SIT, *set*, &c.
   3. NOUNS with a change of vowel in the plural: FOOT, *feet*; TOOTH, *teeth.* So goose, mouse, man, woman, &c.
6. OLD ENGLISH ENDINGS of words are a sign, *in most cases*, that the words are Old English.

They are—
NOUNS in *hood, head, ship, dom, th, t, ness, rick, wick,* &c.
NOUNS in *ling, kin, ock, ie.* They are generally diminutives.
NOUNS in *en* (always).
ADJECTIVES in *ful, ly, ish, en, ern, ward, some.*
VERBS in *en.*

7. MOST MONOSYLLABLES are Old English.

EXERCISES.

Write essays embracing Old English words given in the lists.
Make out lists of words shown to be Old English by the preceding rules.

III.—The DANES, and Northmen generally, were the first new people from abroad who disturbed the English population, and introduced themselves among them as a new element. The Danish invasions lasted nearly two hundred years (in round numbers from A.D. 800 to A.D. 1000) and left their traces in a number of words, though in fewer than might have been expected, from the close resemblance of Danish itself to Old English.

Here are some :—

BY, town—Whit*by*, Der*by*.
SON, after proper names—Swain*son*, that is Sweyn's son.
WOLF, or GUELPH, which is the same word. This is the Queen's name.
The words *bait, bray, dish, dock, doze, dwell, flimsy, fling, gust, ransack, rap, whim, force* (a waterfall), *din,* and *gill* (a ravine) are Norse.

There are, no doubt, a great many more Norse words, and Celtic words also, in common use in our Provincial Dialects.

IV.—1. A great change in the language was brought about by the Norman Conquest (A.D. 1066). The Normans had already entirely laid aside their own Norse, and become Frenchmen, using French as their speech. Coming as conquerors, and disdaining for a long time to use English, which was despised as the language of a subject people, French thus became the language of the court, of the law, and of the upper classes in Church and State. Indeed, it had already been cultivated at Court in the later days of the Saxon kings, to whom Normandy was then what Paris afterwards became to us under the reign of Louis XIV., when Charles II. had become his pensioner.

2. The adoption of any large number of French words as a part of our common language was only attained by slow degrees. The two currents of national feeling, like distinct streams in a common channel, flowed, long, side by side, before they mingled. French was the only language a gentleman could use; but to the English it was the speech of their haughty and hated oppressors. Time, however, softened the animosities of both nations. The Frenchman came to look on England as his country, and the Englishman ceased to think of him as a foreigner. The one found he needed to use English words, and the other that many things for which there were no words in English had words to express them in

French. The arts of life, its refinements, its learning, had often none but Norman terms to embody them.

3. But it was only by a very slow and unperceived progress that Norman French came to be finally incorporated with the common speech. In the thirteenth century boys in grammar schools were still taught French as the principal study. Members of the universities were ordered to converse in French or Latin, and the proceedings of Parliament and the minutes of the Corporation of London were recorded in French. The Normans did not, indeed, for centuries give up the hope of making French the language of England, and strove to throw English out of use by much the same steps as have been used in our own times by Denmark in reference to German, in the Duchies, and by Russia with Polish, in Poland.

4. One effect of this court favour for the language of the conquerors is seen in the fact that nearly all the authors who appeared for nearly three centuries after the Conquest wrote in French. It was not till the beginning of the fourteenth century that the proscription of English was finally removed, by the discontinuance of the compulsory use of French in the public schools, and by the passing of a statute (A.D. 1362) directing that English should thenceforth be used in the courts of justice.

5. In the writings of the two great authors of the fourteenth century—Wickliffe and Chaucer—we have the means of noting how far the incorporation of French words into English had then advanced. In Wicliffe, who wrote for the body of the people, the English element so largely prevails that there are few words used by him which are not still in use to-day. Take, for example, the following verse of his translation of St. Matthew:—

"And rain came down, and floods camen, and winds blewen, and thei hurleden in to that house: and it felle down, and the fallyng down thereof was grete."

The only difference between this and English of the present day is in the use of the Old English affix *en* in the tenses of the verbs, and the variations in the spelling of some words.

6. It is to Chaucer that we are in great part indebted for the final admission of a rich addition of Norman-French words to our language. In his poems he gave them a permanent place in our tongue, instead of the unsettled use in mere conversation and public documents. The foundation and construction of his style is purely English; but he introduces many Anglo-Norman words, some of which have since become obsolete. Here is a specimen of his language turned into modern English in the alternate lines:—

"Sustyr, quoth he, this is my ful assent,
Sister, quoth he, this is my full assent,
With all thavys heer of my parlement,
With all the advice here of my parliament,

That gentil Palamon, your ownè knight,
That gentle Palamon, your own knight,
That serveth you with hertè, will, and might,
That serveth you with heart, will, and might,
And ever hath doon syn ferste tyme ye hym knewe,
And ever hath done since first time ye him knew,
That ye schul of your grace upon him rewe,
That ye should of your grace upon him rue,
And take him for your husbond, and for lord;
And take him for your husband and for lord;
Lĕne me youre hand, for this is our accord.
Lend me your hand, for this is our accord.
Betwixt hem was imaad, anon, the bond,
Betwixt them was made, anon, the bond,
That highté matrimoyn or marriage,
That is called matrimony or marriage,
By alle the counseil of the baronage.
By all the council of the baronage.

Here the words *assent, advice, parliament, gentle, serveth, grace, accord, matrimony, marriage, council,* and *baronage* are Norman words. You may judge how poor our language would have been without additions of which these are only a very small sample. The rest of the lines are in Old English.

V.—The next great addition to our language was directly from the LATIN. Many words had already been adopted from it, through the Roman occupation and the Norman-French; but with the Revival of Learning in the fifteenth and sixteenth centuries, the additions made were largely increased. It will be well, however, to notice the earlier contributions first.

1. The Latin words introduced during the Roman rule in Britain nearly all refer to military affairs, or military posts. They are such as—

CASTRUM, a camp. You see it in *Chester*, Don*caster*, Lan*caster*, Col*chester*, *Chester*ton, Man*chester*.
COLN, for *colonia*, a colony—as in Lin*coln*.
PONS, *pontis*, a bridge—as in *Ponte*fract, *Ponte*land, &c.
PORTUS, a gate—as in Brid*port*, &c.
STREET, from *stratum*, a road—as in Watling *Street*, *Stret*ton, &c.

2. A number of Latin ecclesiastical words were introduced by Augustine and the Roman missionaries who followed him, as—

Chalice (L. and Gr., *calyx*, a cup).
Cloister (L., *claustrum*, an enclosed space).
Mass (L., *missa* (est), the congregation *is dismissed*. The mass got this name because communion was celebrated after the dismissal of the general congregation).
Minster (L., *monasterium*, a monastery).
Monk (L., *monachus*).
Pall (L., *pallium*, a cloak).
Provost (L., *prepositus*, the dignitary *placed first*).

3. The mass of Norman words introduced before and after the Conquest were originally Latin. The mighty empire of Rome spread Latin over a large part of Europe, as the language of the various populations. Hence, many languages, formed since its grandeur passed away, are monuments of its former overshadowing greatness. No fewer than six modern languages, called the Romance languages, from their Roman source, have thus been formed from Latin. They are the French, Italian, Spanish, Portuguese, Wallachian, and the Roumansch, or Romanese, spoken in the Grisons, in Switzerland. Let me give you a few simple rules which help to point out words thus derived from Latin, through the French, at an earlier or later date:—

(1.) Nouns in *our*, *ier*, *chre*, or *eer*; as—ard*our*, caval*ier*, sepul*chre*, mutin*eer*.
(2.) Nouns and adjectives in *que*; as physi*que*, uni*que*, obli*que*.
(3.) Words beginning with *counter*, *pur*, and *sur*; as—*counter*poise, *pur*chase, *pur*loin, *sur*cease, *sur*feit.

(4.) If words of Latin origin are much varied from the Latin form in their English spelling, it is probable that they have come through the French; as—

Delight; L., deliciæ; F., délice.
People; L., populus; F., peuple.
Friar; L., frater; F., frère.
Costume; L., consuetudo; F., coutume.
Royalty; L., regalitas; F., royauté.

But these rules are not always to be depended upon, for many words which they affect come directly from the Latin.

4.—1. During the period known as the Revival of Learning, which in England was later than on the Continent, and may be spoken of as the reign of Henry VIII. and his immediate successors, Latin words came into the language in great numbers. Indeed the copious use of Latin words was only stopped by the French tastes, fashions, and habits of thought which rose with the Restoration. Authors, vain of their scholarship, or so accustomed to Greek and Latin that they forgot that the people were not so learned as themselves, delighted in sowing their pages broadcast with Greek and Latin words and quotations. Bacon, Burton, Sir Thomas Browne, Jeremy Taylor, Milton, in his prose, and others, thus Latinised their style to a large extent, even in its structure. But the immoderate use of such foreign elements passed away, and the language remained permanently enriched by great numbers of words which are now among the richest treasures of the language.

It is to these authors that we owe, for example, such words as *method*, *function*, *numerous*, *penetrate*, *scientific*, *delineation*, *dimension*, *idiom*, *figurative*, *audacious*, *prodigious*, *ponderous*, *portentous*, *consolidate*, *propitious*, *symptom*, and many others.

2. The characteristics of this Latin-English show themselves in such phrases as the following, from the Douay New Testament, A.D. 1582 :—

Heb. ix. 23.

Authorised Version :—"The patterns of things in the heavens."
Douay Version :—"The exemplars of the celestials."

Heb. xiii. 16.

Authorised Version :—"To do good and to communicate forget not; for with such sacrifices God is well pleased."
Douay Version :—"Beneficence and communication do not forget; for with such hosts God is promerited."

Dr. Johnson, in the eighteenth century, fell into a similar style. Here is a sentence from the Preface to his Dictionary :—

"When the radical idea branches out into parallel ramifications, how can a consecutive series be formed of senses in their nature collateral?"

His definition of "lace" is—"anything reticulated or decussated, with interstices between the intersections."

Yet it was in the period between Henry VIII.'s reign and the Restoration that our language definitely took its present form. French words in numbers were introduced during the short glory of the restored Stuarts, and words from many other languages have since, from time to time, been freely adopted; but they have, even as a whole, only enriched our tongue, without changing its character.

3. We owe deep gratitude, above all, to the authors of the Authorised Version of the English Bible (A.D. 1604—1611) for creating a standard of pure idiomatic English. Shakspere also rendered us an immense service in this way, and so did Milton in his poems. Of the words used by the translators of the Bible, which are somewhat fewer than six thousand in all, scarcely two hundred have in any sense gone out of use; of the fifteen thousand words used by Shakspere, all but five or six hundred are still current in every-day use; and of the eight thousand words in Milton's poems there are not more than a hundred which are not as familiar to-day as they were when Milton lived. Thus, the three great literary monuments of our language—the English Bible, Shakspere, and Milton—fixed the syntax of our tongue in the form it had already taken, and perpetuated a mass of words sufficient to form a permanent and living body to it for ever.

4. In the last two centuries the process of enriching has steadily continued. Commerce, travel, science, the arts, and literature, have each brought among us foreign words, which now form a recognised part of our vocabulary. Some of these words had, indeed, been earlier in use; but for one word which dates an earlier English use, there are many of more recent introduction. A glance at some of the foreign words most generally used may be of service.

From the HEBREW we have taken—

EPHOD—the upper vestment of the High Priest, of linen.

CABALA—the secret mystical interpretation of the Jewish law, *received by tradition.*

SERAPH-IM—*shining*, or *high* and *illustrious, ones;* a high order of angels.

CHERUB-IM—an exalted order of spiritual beings.

AMEN—faithful and true.

ARABIC:—

ADMIRAL—from *amir*, a lord or chief.

ALCHEMY (*al kimia*)—the black or Egyptian art; a supposed science by which *black* earth could be turned to gold.

ALGEBRA—algebra was first made known in Western Europe by Arabic translations of old Greek books on it.

ELIXIR (*al iksir*, lit., *the philosopher's stone*)—a liquor once sought for by alchemists to transmute base metals into gold, to preserve life, &c.; now, an essence.

ZERO (*zara*)—a small seed; the cipher from which thermometers are graduated.

ZENITH—the point of the heavens *over one's head.*

GIRAFFE, gazelle, saffron, lemon, orange, sherbet, lute, syrup, artichoke, mattress, jar, assegai, barragan, coffee, sugar, amber, mummy, jasmin, crimson, assassin, vizier, divan, sultan, arsenal, carat, tariff, sofa, coffee, sultan, and magazine are also Arabic words.

From PERSIAN we have received—

Bazaar, lilac, pagoda, caravan, azure, scarlet, taffeta, and saraband.

The following words are TURKISH:—

Tulip, turban, janissary, dragoman, and perhaps scimitar. "To chouse" comes from a swindle committed on the Persian merchants of London, in 1609, by a Turkish *chiaous*, or interpreter.

The CHINESE gives us—

Gongs, Nankin, Bohea, Hyson, and Congou.

From the MALAY we have—

Bantam, sago, gamboge, shaddock, and amuck—which is an expression for frenzied madness of passion.

America has given us the AMERICAN INDIAN words—

Tobacco, chocolate, condor, hammock, wigwam, cacique, hurricane, maize, potato, squaw, pemmican.

From the EAST INDIES we have—

Calico, chintz, muslin, toddy, curry, and lac.

SPAIN gives us—

Musquito, negro, duenna, punctilio, alligator, gala, palaver.

PORTUGUESE gives us—

Coco, fetish, caste, and marmalade.

ITALIAN words are few. There are—

Bandit, charlatan, pantaloon, and gazette.

The DUTCH give us many of our sea terms; as—

Sloop, schooner, yacht.

CHRONOLOGICAL NOTES ON ENGLISH AND GENERAL HISTORY.

(*Continued from* p. 334 "Fifth Reader.")

WILLIAM AND MARY.

1688—1702.

MONARCHS CONTEMPORARY WITH WILLIAM AND MARY.

France—Louis XIV.	1643—1715
Germany—Leopold I.	1658—1705
Russia—Peter the Great	1682—1725
Sweden—Charles XII.	1697—1718

William III. was the son of William, Prince of Orange, and was born at the Hague in 1650. Mary was the daughter of James II., and it was through her, and because he himself was a Protestant, that William was made King of England.

1689. The throne of Britain was settled on William and Mary, and, as the result, the Toleration Act was forthwith passed, relieving all Dissenters, except the Roman Catholics, from the worst of their disabilities, &c., and Presbyterianism was established in Scotland, in the room of Episcopacy. The "Bill of Rights" also was adopted, limiting the succession to the Crown of Britain to Protestants.

King James, supported by Louis XIV., landed in Ireland, and besieged Londonderry.

1690. King William went over to Ireland, and gained the Battle of the Boyne July 1. War in Europe stirred up by Louis XIV.

1691. The whole of Ireland submitted to William.

1692. Massacre of the Macdonalds of Glencoe after they had submitted to the requirements of the Government. William both signed and countersigned the order for this butchery, and never punished its authors. He is said to have been kept in ignorance of their submission.

1693. King William both this year and in 1692 went over to the Continent to the war, and was defeated, each year, by the French.

1694. Queen Mary died aged 33, December 28, of smallpox, which was then an awfully fatal disease.

The Bank of England was established. Hitherto the Goldsmiths had acted as bankers. The projector of the bank was William Paterson, a Scotchman, who was also the author of the unfortunate Darien scheme, to make a canal through the Isthmus of Darien, from the Atlantic to the Pacific. Greenwich Hospital was also founded this year, as a refuge for wounded and aged seamen of the Royal Navy. It was built on the grounds of Greenwich Palace, so famous in Henry VIII.'s time.

Chelsea Hospital was also finished in this reign as a retreat for

wounded soldiers. It was founded by the grandfather of Charles James Fox.

1695. The corruption introduced by Charles II. had now affected Parliament to such an extent that Sir William Trevor, the Speaker, was expelled for bribery.

Great flaming clouds of war were this year rolling hither and thither on the Continent, meeting and breaking in blood, from time to time.

1696. Peace between France and Savoy, by which France had to surrender all her conquests, so that all the blood spilt for them had been simply thrown away.

The first Eddystone Lighthouse was built this year.

1697. The great disturber of Europe, Louis XIV., was forced to make peace with England and its allies, and to acknowledge William III. as King of Great Britain.

Peter the Great this year and the next travelled incognito through Holland, England, and other countries. He was a man of great abilities, but more than half a barbarian. He was disfigured by the most brutal passions, yet had some brighter traits which made him the true founder of the Russian empire. He worked for a time as a shipwright at Amsterdam, and at Deptford, near London, living at the latter place in the mansion of John Evelyn, where one of his great amusements was trying to drive wheelbarrows through the grand holly hedges of the garden.

1698. It was proposed by Louis XIV., William III. and the Emperor of Germany, to divide the dominions of the Spanish Monarchy among them—the King of Spain, Charles II., having no children.

1699. King William's earnest wish to have his Dutch Guards retained in England was rejected by the House of Commons.

1700. A second treaty was made for the partition of the Spanish Monarchy, giving the crown of Spain to an Austrian archduke. So low had the once mighty empire of Spain now fallen. On Charles II. of Spain's death, however, this year, Spain passed to Philip of Anjou, grandson of Louis XIV., and thus the reign of the Bourbons in Spain commenced.

Charles XII. of Sweden, a great soldier, was this year at war with Russia.

1701. The Act of Settlement passed by which in case neither William, nor Mary's sister Anne had any children, the English Crown was settled on the Princess Sophia of Hanover, grand-daughter of James I. through his daughter, married to the Elector Palatine—and to her heirs, being Protestants.

James II. died at St. Germains, near Paris, aged 68. His son was forthwith acknowledged by Louis XIV. as King of Great Britain, on which Parliament attainted him—that is, deprived him of his rights, declaring them forfeited.

War again began this year, respecting the Spanish Succession, just settled in favour of Louis XIV.'s grandson; England, Holland, and Germany taking up arms on account of it against Louis XIV., who had to defend himself with his treasury empty, and his greatest generals now dead. He had already reigned fifty-eight years, and was destined gradually to lose all the glory for which he had disturbed the world so long.

Charles XII. of Sweden this year invaded Poland, the crown of which, being elective, was a constant cause of contention in Europe.

1702. King William III. died March 5, aged 52, by being thrown from his horse.

He was a man very reserved, cold and grave in his manners, but of high ability, great judgment, and marked by the calm bravery of his race. He served England honourably as a constitutional king, and laid the foundations of the peace and liberty we have enjoyed ever since his reign.

QUEEN ANNE.

1702—1714.

The contemporary monarchs remained the same as since James II.'s reign, except Philip V. of Spain (1700—1751), respecting whom the War of Succession was now raging.

Louis XIV. had reigned since 1643, when he was five years old. In 1651 he was declared of age, when he was 13. He had reigned during the days of Charles I., Cromwell, Charles II., James II., William and Mary, and was destined to outlive Queen Anne by a year. France, under him, was a mere despotism. When 17 he had already used the famous expression in answer to some question—"The State? I am the State."

Anne was the second daughter of James II. and Anne Hyde, the Earl of Clarendon's daughter. Her brother James, the eldest son of James II., was the true heir, but was excluded because he was a Roman Catholic. The Duchess of Savoy, also, was nearer than she, but she, also, was shut out from the same cause. Anne was married to George, of Denmark, and had seventeen children, who all died in infancy except one, who lived to the age of 11.

The once great name of Marlborough is linked with the reign of Queen Anne. John Churchill was born in 1650, served under Turenne, and learned from his future enemies the way to conquer them. He got into the favour of James II. by steps which reflect deep dishonour on him, and then laid the foundation of all his further advance by marrying Sarah Jennings, a maid of honour of Queen, then Princess, Anne. Having deserted James on William III.'s coming over, he was made Earl of Marlborough in 1689, and after a short loss of favour when Queen Anne began her reign, he was made Captain-General of the

English and their allies in a war which he had advised against Louis XIV. Its objects were to maintain the "balance of power," an expression which ruled the fate of all Europe till our day, though no one could give any rational explanation of it, and to counteract Louis having secured Spain for his grandson. He was a great soldier, but a man of the meanest and most sordid nature. His great deeds filled all men's mouths once, and crushed all the life-long ambition of Louis XIV.

1702. Marlborough was in Flanders scattering the French before him, and taking town after town. On his return to England in November he was made a duke.

Charles XII. of Sweden still in the midst of his wars with Russia and Poland.

1703. Marlborough took new towns in the Netherlands from the French. Peter the Great founded St. Petersburg, and Charles XII. gained the battle of Pultusk, in Poland.

A tremendous storm broke over England this year. Thirteen men-of-war and a great many merchant ships were lost in it, and Eddystone lighthouse was washed down; Winstanley, who built it, perishing in it.

Sir Isaac Newton was this year President of the Royal Society.

1704. Gibraltar was taken from Spain, and the Duke of Marlborough won his great victory of Blenheim. In Poland Charles XII. got his nominee elected king.

1705. Marlborough still storming triumphantly against the French.

1706. The Articles of Union between England and Scotland, making one kingdom of the two, were signed on July 22; but it was long before the Scotch people looked upon the step with much favour.

Marlborough won the battle of Ramillies, a village in Belgium, utterly defeating the French; Prince Eugene, at Turin, also defeated them, driving them out of Italy, and Louis, humbled in his old age, in vain proposed terms of peace.

Charles XII. was still in fierce conflict with the Russians, whom, with the Saxons, he defeated, forcing Frederic Augustus, the rival King of Poland, to abdicate.

1708. Marlborough won the battle of Oudenarde, a town in Flanders.

Prince George, the Queen's husband, died.

1709. Marlborough gained the battle of Malplaquet, a French village nine miles from Mons, in Flanders. Louis again vainly offered to make peace. His concessions were refused, and he had to bear the crushing weight of defeat after defeat with an empty treasury, and with famine breaking the spirits of the French. Such was the issue of a life of ambitious attempts to rule Europe! It prepared the way for the great Revolution.

Charles XII. was this year defeated by the Russians, at Pultowa, and the dethroned King of Poland was restored. Samuel Johnson was born this year.

The British had for four years been fighting in Spain, with varying success, to dethrone Louis XIV.'s grandson.

1710. Things went against the English in Spain.

1711. The South Sea Company, which was to trade to the South Seas was this year established, and rose very high in public favour, to the subsequent ruin of a great many.

Marlborough was this year deprived of all his offices on charges of corruption, and two members were expelled from the House of Commons on the same accusations.

1712. Richard Cromwell died, aged 90—a quiet country gentleman.

War all over Europe and elsewhere, between Russia and Sweden; England and Spain; Russia and Turkey; French and Brazilians (Portuguese); French and Germans; and between the Danes and Poles, and the Saxons and Swedes. There was, besides, civil war in Switzerland. Europe was, in fact, always at war in those days, and had been so for generations.

1713. The Peace of Utrecht signed between France and the Allies, giving up, in favour of Louis XIV., though he was utterly beaten and exhausted, nearly all which it had been the aim of the war, on the side of the victorious Allies, to obtain, including the recognition of his grandson as King of Spain. The English people were furious at a treaty which threw away the prize of all their victories, bought with so much blood and treasure.

1714. On the 1st of August Queen Anne died, at the age of 49, at Kensington.

She had good abilities, but her education had been much neglected, leaving her coarse in her manners, and unlike a queen. She was, however, a most excellent wife, a fond mother, kind to her dependants and friends, and generous in the use of her wealth. It was she who established "Queen Anne's Bounty" to increase the income of the poorer clergy.

With Anne the Stuart dynasty passed away. No royal race has been more unfortunate. James I. of Scotland, long a prisoner in England, was murdered (1437); James II. was killed at the siege of Roxburgh (1460); James III. was murdered (1488); James IV. was slain at Flodden (1513); James V. died of a broken heart (1542); Queen Mary was beheaded (1567); James VI. (I. of England) died a natural death (1625); Charles I. was beheaded (1649); Charles II. suffered great hardships for many years, and returned only to prove himself a worthless profligate, and to die of apoplexy in the midst of his wickedness (1685); James II. had to abdicate (1688); Mary died of small-pox at the age of 33; Anne had a life of sorrow, losing seventeen children and her husband; and James II.'s descendants, the Chevalier St. George and Prince Charles Edward, lived and died exiles, the race ending in Cardinal York, Prince Charles's brother, who died, a priest, in 1807.

The reign of Anne was famous for its literary men. Addison (1672—1719); Steele (1671—1729); Pope (1688—1744); Swift (1667—1745); Defoe (1664—1731), amongst others, brought the language to a perfection it had never before attained, and which is still a standard of classical purity and elegance. Gibbons, the wood-carver (1648—1721); Sir Isaac Newton (1642—1727); and Sir Christopher Wren, architect of St. Paul's Cathedral (1632—1723), also shed lustre, amidst others, on the age.

Yet Mr. Knight, in his "History of England," says of the condition of the humbler classes at this time: "Our Saviour's reproach, 'I was sick, and in prison, and ye visited me not,' was unheeded; London and our great towns were swarming with destitute children, who slept in ash-holes and at street-doors; they were left to starve, or to become thieves, and in due course to be hanged. The Church, in 1701, established the 'Society for the Propagation of the Gospel in Foreign Parts;' the worse than heathen at home were left to swell the festering mass of sin and sorrow, until the whole fabric of society was in peril from its outcasts, and no man's life or property was safe; a fifth of the population were paupers."

HOUSE OF HANOVER.

GEORGE I.

First Monarch of the House of Hanover, 1714—1727.

MONARCHS CONTEMPORARY WITH GEORGE I.

France—Louis XIV.	1643—1715
,, Louis XV.	1715—1774
Germany—Charles VI.	1711—1742
Spain—Philip V.	1700—1751
Prussia—Frederic William I.	1713—1740

George I. was the eldest son of the Elector of Hanover and Sophia, great granddaughter of James I. by the female side (see A.D. 1701). He was born at Hanover in 1660, and was consequently 54 when he became King of Great Britain. He could never speak English, and always preferred Hanover to England, the principal use he made of which was to draw money from it for one purpose or another. He was married to the daughter of the Duke of Brunswick, who did not behave as she ought, having become too intimate with a Count Konigsmark. He was assassinated secretly by George's order, while the guilty wife was kept a close prisoner in the Castle of Ahlden, in Hanover, for forty years, no one being allowed to see her.

George I. was personally brave, like all the Guelphs, but irritable, rough, and stupid; a man who filled the place of constitutional monarch well enough by submitting to the laws of England, but otherwise in no respects a king.

1714. The reign opened with peace between France and the German Empire, France giving up Italy to the latter; but there was still war in Spain, war between Venice and the Turks (1714—1718), between Denmark and Germany, and between Russia and Sweden.

1715. First rebellion in Scotland in favour of the son of James II., the Chevalier St. George.

In this year Louis XIV. died, having outlived his glory, and having prepared the way by his exhausting wars for the still further decline of France under his successor, Louis XV.

Louis XV., the great grandson of Louis XIV., was five years old when he became king; but France was put under the regency of his uncle, the Duke of Orleans, a man of the greatest profligacy and worthlessness.

1716. Lords Derwentwater and Kenmure were beheaded for taking part in the rebellion of the year before. Lord Nithsdale escaped by the cleverness of his wife.

The Mississippi scheme was this year brought forward in France, having for its professed object to make money by trading to the regions on that river. It was a mere "bubble," and caused immense wretchedness when it burst.

1717. War, in which England joined, against Spain.

1718. Charles XII. of Sweden was this year killed at the siege of Frederickshal, a town in Norway.

1720. Prince Charles Edward born. The South Sea scheme in England and the Mississippi scheme in France burst, causing ruin on every side.

1721. Sir Robert Walpole became Prime Minister of England, an office he held for the next twenty years.

1722. The Duke of Marlborough died, aged 72. Bishop Atterbury and four peers were sent to the Tower on the charge of plotting to bring in the Stuarts. Peace had now been made over Europe generally, but it was of short duration.

1723. Louis XV. assumed the government of France. At first he was called the Well-Beloved, but before he died he was loathed for his sensuality, and for his utter disregard of the interests of his people.

1725. Peter the Great of Russia died, and was succeeded by his widow, Catherine.

1727. George I. died of apoplexy, in his carriage, while travelling to Osnabruck, in Hanover, to see his brother.

GEORGE II.

Second Monarch of the House of Hanover, 1727—1760.

MONARCHS CONTEMPORARY WITH GEORGE II.

France—Louis XV.	1715—1774
Germany—Charles VI.	1711—1742
" Charles VII.	1742—1745
" Francis I. and Maria Theresa	1745—1765
Prussia—Frederic William I.	1713—1740
" Frederic II. (the Great)	1740—1786

George II. was the only son of George I. and was born at Hanover in 1714. He was a man of the loosest morals and treated his wife shamefully. He was of short stature, fat in his later years, and had staring fish eyes. He was personally brave, but greedy, and violent in temper, not without a certain truthfulness and honour, however, that redeemed much. Intellectually, he was a cipher.

1727. It is difficult to notice particulars in this reign, the affairs of Europe having sunk into a medley of Court intrigues and royal wars, unimportant now, and not worth remembering, for the most part. Kings treated their subjects as counters on a chessboard, to be played with at their will, and strewed all Europe with their whitened bones, in wars by which, whoever won, the nations could only lose. France under Louis XV. was bent on dividing Germany so as to make French influence supreme. George II. sent armies of Englishmen to die in European quarrels of which they knew nothing and for which they cared as little. Maria Theresa, in Austria, stood at bay against Frederic the Great of Prussia on the one hand, and France on the other, on the question of her husband being made Emperor, instead of the Elector of Bavaria, whom French intrigues had got elected to that dignity. Meanwhile, the greedy poor Grand Dukes and Rulers of the smaller German kingdoms and States hired out their subjects to fight on any side, indifferently, that paid best. The sky was everywhere heavy with war clouds, driving now hither, now thither, ever and anon raining blood, and this without a principle at stake, or an object worth a moment's dispute. In Spain, Gibraltar stood a siege from the Spaniards, and in Russia, Catherine, the Czarina, died. She was succeeded by Peter II., aged twelve. Catherine had been a woman of bad character before Peter married her for nursing him when he was ill, on one of his campaigns, and her morals when on the throne shocked even a corrupt age.

Sir Isaac Newton died, and Gainsborough, the painter, was born this year. Behring, a Dane, in the service of Russia, discovered Behring's straits.

1728. Oliver Goldsmith was born, at Pallas, Ireland.

1730. Anne, niece of Peter the Great, became Empress of Russia, Peter II., poor boy, being murdered.

Edmund Burke was born. .

1731. John Wesley and George Whitfield began to preach through England, which had now sunk to perhaps a lower depth of immorality and irreligion than at any other period in her history.

George Washington was born and Daniel Defoe died.

1733. War in Europe about the Polish succession—the secret interest to all parties being who should have the best share of Poland when it broke up. It was the sick man of Europe, in the last century, as Turkey is in this. Italy also was wasted with wars having for their object to get a kingdom, somehow, for Don Carlos, of Spain.

1734. Don Carlos, helped by the French, became King of Naples.

The Bank of England, Threadneedle Street, was opened.

1735. A momentary peace in Europe: kings and princes dividing its nations among themselves as they thought proper.

Linnæus this year published his "System of Nature," the first great Natural History.

1736. The Turks and Russians were at war.

1738. George III. born.

1739. The Methodist Society was founded in London by John Wesley. His preachers did great good in these years, but met with the most violent opposition. Sometimes they were publicly whipped by the magistrates, as disturbers of the peace.

There was war between England and Spain, which was carried on by England in a very languid and ineffective way. Smollett was this year in Admiral Vernon's expedition to South America against the Spaniards, which issued in sad disaster some months hence.

1740. Lord Anson sailed on his voyage round the world, the object being to capture the Spanish plate fleets in the Pacific.

Maria Theresa succeeded to the throne of Austria, and Frederic the Great of Prussia invaded her province of Silesia, which he conquered next year.

Ivan VI., an infant of two months old, became Emperor of Russia.

1741. The baby Emperor of Russia was murdered and Elizabeth became Empress.

Handel's *Messiah* was published this year.

Rousseau died.

1742. England began to grant subsidies to Maria Theresa, as if distant European quarrels, in which only the interests of kings were concerned, had any right to be fought out with British money.

1743. George II. defeated the French at Dettingen—that is, succeeded in extricating his army from the destruction the French had planned for it. A battle otherwise without results.

1744. War between France and England.

Anson returned with Spanish treasure, sufficient to fill 32 waggons, taken from the *Manilla* galleon, which he had captured.

Frederic the Great invaded Bohemia, Maria Theresa's province, to prevent his own territory being invaded, but was compelled to retreat.

Pope died this year.

1745. The English defeated by the French at Fontenoy.

In this year the Stuarts made their last great attempt to regain the Crown of Britain. Prince Charles landed in Scotland in July; arrived in Holyrood, with an army of Highlanders, September 17, defeated the king's army, under Cope, at Prestonpans, September 21—marched into England and took Carlisle November 15: pressed on to Derby, and reached it, December 4, but had to retreat to Scotland owing to the divisions among his followers, December 6, when the Crown was almost within his grasp!

Maria Theresa this year gained the end she had so long sought, by having her husband elected Emperor of Germany. Frederic the Great still at war with her, and this year victorious.

In Italy the French and Spaniards were still fighting.

1746. Prince Charles defeated the king's troops at Falkirk on January 17, but was himself totally defeated by the Duke of Cumberland (the loser at Fontenoy) at Culloden, April 16. The prince escaped to France after months of hiding, but his followers were treated with the most infamous cruelty by Cumberland, who is still known as "the butcher," from his conduct at this time. Lords Kilmarnock and Balmerino were beheaded this year for their share in the Rebellion, and Lord Lovat next year, in London, at the Tower.

1747. Wesley and Whitfield were now stirring the public mind greatly, for good, by their preaching.

Naval victories over the French cheered England.

France and Holland were at war.

1748. The struggle for supremacy had commenced in India between the French and English, but a peace was this year made between France and England, by which each gave its conquests back again to the other.

Madame de Pompadour, Louis XV.'s favourite, now began to govern France.

1751. Clive, in India, took Arcot and held it.

1752. The French in India surrendered to Clive.

This year the "New Style" was introduced, September 3 becoming September 14, and the legal year being fixed to begin on the 1st of January instead of on March 25. Great troubles rose about this, the people thinking they had been robbed of eleven days!

1754. The French and English came into collision in the American settlements. Washington, in command of the Virginia Militia, was taken prisoner.

1755. Hostilities between the French and English continued in America.

On November 1 a great earthquake took place at Lisbon, in which

thirty thousand perished. England voted £100,000 to relieve the sufferers, who, on their side, sought to propitiate the Almighty and show their sorrow for their sins, by burning, banishing, or imprisoning all the Jews they could lay hands on!

1756. The "Seven Years' War" began between England and Prussia on the one side, and France, Austria, and Russia on the other. Frederic the Great had nearly all the fighting on his own side to do, his only help in men being the Hanoverians sent by George II., but he got subsidies from England. The theatre of the war was mainly Saxony, Bohemia, Moravia, and Silesia. In this year Frederic won the battles of Lowositz and Pirna.

In India, Surajah Dowlah took Calcutta, and imprisoned the English garrison in the "Black Hole" (June 18).

1757. On New Year's Day Clive retook Calcutta, and on June 23 fought the battle of Plassey, in which Surajah Dowlah was utterly defeated, and the empire of the British in India founded.

Admiral Byng tried and shot, March 14, for failing to relieve Minorca when threatened by the French.

"Butcher" Cumberland capitulated to the French at Closter Seven in Hanover, with thirty-eight thousand Hanoverians.

The French were also successful against us in the American Settlements.

Lord Chatham, then William Pitt, became Prime Minister, June 28.

There never had been a darker or more inglorious time for England, for centuries. News of Clive's victory had not reached England, and in Europe and America alike she had been shamefully defeated. Pitt soon changed this aspect of affairs, and raised her to a pinnacle of glory.

Frederic the Great gained the battle of Prague, May 6, but was defeated by the Austrians at Kolin, June 18, and Prussia invaded. Russia also attacked Frederic, took Memel, and won the battle of Gros Jagersdorff, Silesia, August 30; but he retrieved the campaign by signally defeating the French at Rossbach, November 5, and the Austrians at Leuthen, December 5, and regained Silesia.

1758. The war again broke out between France and England, which was successful both by sea and land.

Horatio Nelson was born this year.

Frederic the Great defeated the Russians at Zorndorff, and was himself defeated at Hochkirken.

1759. Wolfe won the battle of the Plains of Abraham, and took Canada from the French, destroying their hold on America for ever.

The war on the Continent, with the French, went against the British, but at sea they were victorious.

The Prussians this year were thrice defeated, but still Frederic fought on, single-handed, against well-nigh all Europe.

1760. The British defeated the French in India.

George II. died, October 25.

GEORGE III.

Third Monarch of the House of Hanover, 1760—1820.

MONARCHS AND POWERS CONTEMPORARY WITH GEORGE III.

FRANCE.
Louis XV., 1715—1774.
Louis XVI., 1774—1792.
Republic, 1792—1804.
Empire, 1804—1814.
Louis XVIII., 1814—1824.

SPAIN.
Charles III., 1759—1788.
Charles IV., 1788—1808.
Ferdinand VII., 1808—1811.
Joseph Buonaparte, 1811—1814.
Ferdinand VII., 1814—1833.

GERMANY.
Francis I. and Maria Theresa, 1745—1765.
Joseph II., 1765—1790.
Leopold II., 1790—1792.
Francis II., 1792—1806.
The German Empire was abolished in 1806 on the abdication of Francis II., who retained only his hereditary states and took the name of the Emperor of Austria.

AUSTRIA.
Francis I., 1806—1835.

PRUSSIA.
Frederic II. (the Great), 1740—1786.
Frederic William II., 1786—1797.
Frederic William III., 1797—1840.

George III. was born in London, in 1738, and was the eldest son of Frederic, Prince of Wales, son of George II., and boasted that he was a born Englishman, he being the first king of his house who could say so. He was a man of pure life, and not deficient in abilities, but bigoted, narrow, and despotic. His virtuous example in a corrupt age must have been of great value, but in politics his reign was disastrous in many ways to the empire. To him England owes the loss of her great American empire, and he left her with a debt of £861,000,000. He had nine sons and five daughters. He married Princess Charlotte of Mecklenburg Strelitz, the population of which is about one hundred thousand, and the income of the prince in proportion; but she thought her marriage a great condescension, and to the end spoke with contempt of the House of Hanover, as compared with her own. She was a very plain little woman, making herself still plainer by taking snuff; but she was a good wife, if a weak mother.

1760. Frederic the Great defeated by the Russians at Landshut, Silesia, June 23; but he defeated them at Leignitz, August 15. Berlin was taken by the Austrians and Russians, October 9; but Frederic defeated the Austrians at Torgau, November 3, and took all Saxony, except Dresden.

1761. English arms triumphed still in India, against the French.

George III. married. William Pitt, the elder, resigned the premiership. Frederic of Prussia was now reduced to act merely on the defensive.

The Bourbons made a family compact to defend each other. It included France, Spain, Naples, and Parma.

1762. War between England and Spain. We were now at war with France as well. From Spain we wrested Manilla and the Philippine Islands; from France her West India Islands.

In Russia, Elizabeth died; Peter III. succeeded; was murdered, and was succeeded by Catherine II.

Frederic recovered Silesia.

1763. Peace between Britain, France, and Spain. Lord Bute, George III.'s favourite, resigned the premiership, and a fierce struggle rose between the Government and John Wilkes, whose cause was really that of popular liberty. Wilkes was successful.

1764. Wilkes wrongfully expelled from the House of Commons, at the King's dictation, as obnoxious to the Government. His offence had been writing against them in a paper called the *North Briton*.

Grenville passed an Act for taxing America.

1765. A "Stamp Act" passed for America, which the Americans resisted.

1766. The American Stamp Act was repealed, but the right to tax colonists was asserted. Pitt was made Earl of Chatham.

1767. A Bill was brought in to tax glass, paper, tea, &c., imported into America.

1768. John Wilkes elected for Middlesex, great tumults attending the election and following it.

Riots at Boston on the news arriving of the new Bill for taxing Americans. English troops sent to Boston.

1769. John Wilkes again expelled from the House; re-elected, but voted ineligible; re-elected a second time; once again rejected by the House; re-elected a third time, but Colonel Luttrell, the nominee of the King and Court, chosen member by the House, though he was in a great minority. Riots in London.

Discontent increased in America.

Arthur Wellesley and Napoleon Buonaparte born.

James Watt got his first patent for improvements in the steam-engine, and Richard Arkwright his for his spinning-frame.

1770. Lord North became Prime Minister.

Riots continued in America about the claim of right on the part of England to tax the colonists, and all the duties were repealed except that on tea.

Louis XVI., then Dauphin, married to Marie Antoinette. France was in great financial distress. Her kings had well-nigh ruined her, and had paved the way for the convulsions soon to follow.

1771. Parliamentary debates first allowed to be published.

Sir Walter Scott born.

1772. First partition of Poland between Austria, Russia, and Prussia.

1774. Warren Hastings became first Governor-General of India. Boston, in America, closed as a port, by the English. The first American Congress, to discuss the popular grievances, met at Philadelphia, September 5. John Wilkes was now re-elected for Middlesex, and took his seat. He was also chosen Lord Mayor.

Louis XV. died—a man infamous for his vice, and reckless, selfish, despotism.

Louis XVI. restored the Parliament of France, and his ministers tried to relieve the public misery.

The Russians annexed the Crimea.

1775. Parliament was bent on forcing the Americans to submit, and the American war began.

1777. La Fayette and other French officers landed in America to aid the colonists in the war.

1778. France allied itself with America.

1779. Captain Cook was murdered at Hawaii (Owyhee), Sandwich Islands. Great siege of Gibraltar by France and Spain.

1780. Rodney relieved Gibraltar. Great excitement in England at the despotism of Government. Lord George Gordon raised the "No Popery" riots. Major André hanged as a spy by the Americans. Maria Theresa died, and was succeeded by her son Joseph. Her husband, the Emperor, had died in 1765.

1781. Lord Cornwallis surrendered at York Town to the French and Americans.

Herschel discovered the planet Urănus.

1782. Rodney gained a great sea-battle over the Freneh. The siege of Gibraltar failed and ended.

1783. The independence of the United States acknowledged by England. William Pitt, the younger, became Prime Minister at the age of 24.

1786. Warren Hastings, now in England, was impeached. Frederic of Prussia died, aged 75—a great man, and the true founder of the greatness of Prussia.

1787. The French notables assembled at Versailles.

1788. The French notables again assembled.

1789. George III., who had been insane since October, 1788, recovered (February).

The States-General was opened in France, and the popular party gaining the upper hand, the name was changed to National Assembly. In July the Bastille was stormed and taken by the people of Paris. The National Guards were formed, and all feudal privileges abolished. On this many of the princes and nobility began to emigrate. On the 6th October the Parisians attacked Versailles, and brought the King and his family prisoners to Paris. The property of the Church was confiscated November 2.

1790. Societies of "Friends of the People" rose in England to agitate for Reform, the events passing in France spreading a wide excitement here. William Pitt had introduced a Reform Bill in 1785 and succeeding years, unsuccessfully; but from this time he opposed Reform, to please the King, and through fear of things going too far, as they were going in France.

1791. Louis XVI. fled from Paris, but was arrested at Varennes and brought back. Austria and Prussia agreed to force France to undo all its reforms, and to restore the King to his former despotism.

1792. The Prussians invaded France, but were defeated at Valmy September 20. In consequence of this invasion the Parisians attacked the Tuileries, murdered the King's Swiss guards, and imprisoned the King and his family in the Temple. The whole French nation meanwhile were mad with alarm of Royalist plots, and rushed on to anarchy. In Paris the prisoners crowded in the jails were ruthlessly massacred, September 2—6, in the frenzy of the lawless mob. This was while the Prussians were marching on Paris, and three weeks before Valmy. A secret printing press, used by the King to publish Royalist manifestoes in contravention of his oath to support the Constitution, had been found, and was the occasion of his imprisonment and of all that followed.

The Prussians retreated after Valmy, and the French soldiers forthwith attacked and conquered Belgium, Savoy, and Nice, on the pretext of freeing the people of these countries.

Coal gas was this year used in Cornwall.

1793. On the 21st January Louis XVI. was guillotined, for which there was a general mourning in England. Britain, and all Europe, except Sweden, Denmark, and Turkey, forthwith declared war against France. Mr., afterwards Earl, Grey, introduced, this year, his first motion for Reform; but the times were most unfavourable, the very name of Reformer exposing any one to a prosecution.

The Reign of Terror under Robespierre began, and spread massacre over France. The Queen (Marie Antoinette) was guillotined October 16, and the King's brother, the Duke of Orleans, November 6. Napoleon Buonaparte took Toulon from the English and the Royalists, an indiscriminate massacre of very many townspeople following, December 19. Fourteen thousand were guillotined, shot, or drowned, without trial, in punishment for the town having surrendered to the English!

Second partition of Poland by Russia and Prussia.

1794. England was at war with France on sea and land, far and near.

Robespierre was guillotined July 28, and the Reign of Terror ended.

The French were everywhere successful in war, on land.

Kosciusko, the Pole, rose against the Russians, but Warsaw was taken by them, and 20,000 citizens massacred. The revolt of the Poles was thus crushed.

1795. Rebellion was simmering in Ireland. The English took the Cape of Good Hope from the Dutch.

The French took Holland, and Buonaparte quelled the insurrection of the "Sections," or municipal divisions, of Paris, thus ending the Great Revolution.

Poland suffered its final partition between Russia, Prussia, and Austria. Having had an electoral monarchy, its lawless nobility, in whose hands

the election of king rested, had made it for generations a trouble to Europe, causing constant intrigues and wars.

1796. Buonaparte went to Italy as General, and conquered the Austrians. The French plundered Italy of her art treasures, and levied heavy taxes, while professing to come as her liberators.

Catherine II. of Russia died, and was succeeded by her son Paul.

1797. Great victory of the English, under Jervis and Nelson, over the Spanish fleet, off Cape St. Vincent.

Victory of Camperdown, over the Dutch fleet.

Buonaparte victorious in Italy this year also, over the Austrians.

1798. Rebellion broke out in Ireland, but was suppressed.

Nelson gained the battle of the Nile, August 1.

The European Powers united a second time against France.

The Pope died a prisoner in France, 1799.

Buonaparte, having subdued Italy, set off for Egypt, which he presently conquered.

1799. The French were repulsed from Acre, and Buonaparte's scheme of an Eastern Empire failed. He returned to Europe, and landed in France.

The English empire grew rapidly in India.

War over all Western Europe with the French armies, who invaded one country after another, on pretext of liberating the people and spreading republican principles, but, in reality, to conquer, plunder, and enslave them.

1800. Great riots and discontent in England at the high prices of food.

Napoleon crossed the Alps, and crushed the Austrians in Italy.

1801. The Union of Great Britain and Ireland. It was effected mainly by bribing the Irish Parliament.

The English gained the battle of Alexandria in Egypt, which forced the French to surrender. Sir Ralph Abercrombie, the general, killed.

The battle of the Baltic won by Nelson.

The Russian Emperor Paul, who was mad, was strangled in his palace. Alexander I. became Emperor.

1802. The short peace of Amiens. £10,000 voted to Dr. Jenner for his discovery of vaccination as a preventive of smallpox. Inoculation with smallpox itself had been previously introduced from Turkey by Lady Montague, but was not very successful.

Napoleon was made Consul for life. He threatened an invasion of England, to repel which 380,000 volunteers and yeomanry were enrolled.

1803. The battle of Assaye, in India, won by Sir Arthur Wellesley.

War again between France and England. All the English in France, about 10,000, were made prisoners, and kept in France.

1804. Napoleon proclaimed Emperor of the French. The Duke d'Enghien seized and shot by Napoleon. He was the last of one branch of the Bourbons.

1805. All Europe, except Germany, united for a third time against France. Nelson was killed, October 21, at his famous victory off Cape Trafalgar.

Napoleon conquered Austria at Austerlitz, December 2. He was now the virtual master of Western Europe.

1806. Joseph Buonaparte was made King of Naples, and Louis Buonaparte King of Holland.

Napoleon, at the battle of Jena, crushed Prussia.

The German, or Holy Roman Empire, was dissolved.

The French gained the battle of Eylau, over the Russians, February 8. Europe, except Russia, was now a French province.

The first steamboat plied on the Hudson River, United States. It was Fulton's. Gas lamps first used in London.

1808. The English, under Sir Arthur Wellesley, landed in Portugal, to drive out the French, who had invaded it and Spain.

Joseph Buonaparte was made King of Spain, and Murat King of Naples.

Napoleon gained several victories in Spain.

1809. Battle of Corunna, and death of Sir John Moore.

England, Austria, Spain and Portugal leagued together against France.

Wellesley was now Commander-in-Chief of the English Army in Spain. Gained the battle of Talavera.

Jubilee to celebrate the beginning of the fiftieth year of the King's reign.

Guerilla war in Spain against France became universal, making it impossible to hold it long. Napoleon gained the battles of Eckmuhl and Wagram, and forced Austria to a humiliating peace. In December he divorced the Empress Josephine.

1810. Napoleon tried to overwhelm the English army in Spain, by sending thither great numbers of the soldiers, now free by the peace between France and Austria. Wellington, however, gained the battle of Busaco, and retired behind the lines of Torres Vedras—that is, behind a range of hills, every passage through which he fortified. Napoleon married Maria Louisa of Austria, April 2. This year he subdued the Tyrol, committing many shameful cruelties in doing so, and forced Sweden to make war with England.

George III. went insane once more, this year.

The great Spanish colonies in South America rebelled.

1811. George IV. was this year appointed Regent—that is, temporary Ruler—on account of his father's insanity. He was a man of good abilities and taste, but without principle of any kind, immoral, and heartless.

English victories of Barossa, Fuentes d'Onore, and Albuera, in Spain. Java was taken from the Dutch.

At home the Nottingham weavers rose in riot, because of the introduction of machinery for weaving.

Napoleon's son, Charles Napoleon, King of Rome, born.

Mahommed Ali, Pacha of Egypt, massacred the Mamelukes, once rulers of Egypt, in the citadel of Cairo.

1812. The towns of Ciudad Rodrigo and Badajos, in Spain, taken by Wellington, who also gained the battle of Salamanca, and was made a marquis.

War began between Britain and America.

Napoleon this year entered on the great campaign against Russia, which was to prove his ruin. Nearly all the States of Europe were forced to send troops to his army, which numbered 680,500 men, with 176,850 horses (cavalry and other). Gained the bloody battle of Borodino, September 7. Entered Moscow September 17, but had to retreat October 19, closely pursued by the Russians, and overtaken by a Russian winter. Only 42,000 men escaped out of all his army.

1813. England, Prussia, Russia, Sweden, and Austria rose against Napoleon, now well nigh ruined by the Russian campaign. The Allies gained the battles of Lutzen, Bautzen, and Leipsic, after which last battle, which was fought for three successive days, Napoleon had to retreat towards France, all the nations now rising together against their oppressor, and chasing him from their soil.

In Spain, Wellington gained the battle of Vittoria.

1814. Wellington entered France, driving the French before him, and gained the battle of Toulouse.

Napoleon driven back to France, the Allies entered Paris, and Napoleon abdicated at Fontainebleau, and was banished to Elba May 14. A fortnight later Josephine died, May 29.

Louis XVIII. was proclaimed King of France. He was a brother of Louis XVI., and reigned till 1824.

1815. The English were defeated at New Orleans, January 8, though peace had been signed between Britain and the States on the 24th of December, at Ghent. The news had not, however, reached America, the shortest passage to which was about a month, in those days of sailing vessels.

Napoleon, breaking his word, escaped from Elba, March 1, and reached Paris in triumph on the 20th. His reign, however, did not last long, for on the 18th June he was finally overthrown at Waterloo, near Brussels, by Wellington and Blucher. Four days after he again abdicated, and on the 15th July surrendered to the British, who banished him to the island of St. Helena.

Louis XVIII. re-entered Paris July 18.

1816. Princess Charlotte, daughter of George IV., married Prince Leopold of Saxe Coburg.

1817. The peace brought only misery for the time to England, stopping the great outlay of public money, and throwing a great many people idle. Prices also were very high, and Government was very harsh. Through all this, riots began in many places.

The Princess Charlotte died, November 6, aged 22.

1819. Great meetings for Reform. Queen Victoria born, May 24. Prince Albert born, August 26.

1820. The Duke of Kent, Queen Victoria's father, died January 23, followed on the 29th by his own father, George III., aged 83. The poor king had been blind, stone deaf, and mad for many years.

GEORGE IV.

Fourth Monarch of the House of Hanover, 1820—1830.

MONARCHS CONTEMPORARY WITH GEORGE IV.

France—Louis XVIII.	1814—1824
,, Charles X.	1824—1830
Spain—Ferdinand VII.	1814—1833
Prussia—Frederic William III.	1797—1840

George IV. was the eldest son of George III. He was born in 1762, and died in 1830. In his youth he was a fine-looking man, but he grew heavy and ungraceful in his later years. He was a bad man in almost any light in which he could be viewed. In 1785 he married Mrs. Fitzherbert, widow of a colonel of that name, but he afterwards deserted her, adding cruelty and falsehood to his crime. In 1795 he married Caroline of Brunswick, an imprudent, perhaps an unworthy woman; but he broke her heart by his cruel persecutions. His debts had more than once to be paid by the nation, and he even stooped to receive large amounts from various very questionable sources. His profligacy went far to corrupt the morals of the nation, nor is it easy to think that such a man could again reign in England.

1820. Revolutions broke out in Spain, Naples, and Portugal, in consequence of the despotic abuses of their governments.

George IV. brought his wife to trial, but was forced to abandon the prosecution, the people showing the bitterest opposition to him and sympathy for his queen.

1821. Napoleon died at St. Helena, May 5, aged 52.

Queen Caroline died August 7, and the King visited Ireland and Hanover.

1822. The governments of Europe were more despotic than ever, in spite of their promises when rousing their subjects to the last struggle with Napoleon, to grant liberal institutions.

1823. Civil war in Spain. The Greeks proclaimed themselves independent, and the terrible massacre of Scio followed, in which the Turks killed 40,000 Greeks, and sold 30,000 into slavery.

Despotism restored in Spain and in Portugal.

1824. Louis XVIII. died at Paris. Charles X. succeeded. His reign lasted from 1824 to 1830.

The war between the Greeks and the Turks continued to rage fiercely.

1825. A very ruinous year in England from commercial failures.

The Stockton and Darlington Railway, the first in England, was this year opened.

Alexander, Emperor of Russia, died. Constantine, his elder brother, refused the throne, and Nicholas I. succeeded, after quelling an attempted rebellion.

This year a steamship sailed from England to India.

1826. The Criminal law of England, which had been very severe, was this year mitigated. At this time there were nearly 300 crimes punishable with death.

1827. The Turkish fleet destroyed by the fleets of England and Russia at Navarino, October 20.

1828. The Duke of Wellington Prime Minister. The Test and Corporation Acts repealed.

1829. The Roman Catholic Relief Bill passed, thus putting Roman Catholics on the same political footing as Protestants. The manufacturing districts of England suffered great distress this year, which led to serious riots.

1830. George IV. died, and was succeeded by William IV.

WILLIAM IV.

Fifth Monarch of the House of Hanover, 1830—1837.

MONARCHS CONTEMPORARY WITH WILLIAM IV.

France—Louis Philippe.	1830—1848
Spain—Ferdinand VII.	1814—1833
,, Isabella	1833—1868
Prussia—Frederic William III.	1797—1840

William IV. was the third son of George III., and was in early life connected with the navy. He had no living children when he began his reign, at the age of 66, having been born in 1765. A man of moderate abilities, but kind-hearted and honourable.

1830. Agitation in Ireland by O'Connell for Repeal of the Union.

Revolution in France caused by Charles X.'s ministers abolishing the liberty of the press, and acting despotically in some other ways. Charles abdicated and fled to England, and Louis Philippe, Duke of Orleans, was proclaimed king. Revolutions followed in Belgium, Brunswick and Poland, and disturbances in many other parts of Europe.

The Liverpool and Manchester Railway, the second in England, was opened this year.

1831. Prince Leopold elected King of the Belgians.

The Polish Revolution was put down by Russia.

1832. The First Reform Bill became law. By this law the election of Members of Parliament was entrusted to all householders who paid £10 a year of rent, and many places which still returned members, but had

become the private property of noblemen and others, were disfranchised. In cities and towns the members had previously been elected by the corporations of the different trades.

The Duke of Reichstadt, Napoleon's son, died, at the age of 21, of consumption. Belgium was separated entirely from Holland: Italy, struggling for liberty, was trampled under foot by the Germans: civil war broke out in Portugal, and Poland was incorporated with Russia, which prohibited the Polish language being taught at schools, closed the universities, and banished great numbers of the best classes of society to Siberia.

1833. A Bill to Abolish Negro Slavery was passed, twenty million pounds being voted as compensation to the owners of the slaves.

Ten bishoprics were abolished in the Irish Church.

Civil war raged in Portugal between Don Miguel, who was crushed by English help, and Don Pedro. Ferdinand VII. of Spain died, and Isabella II. succeeded, at the age of three, her mother, Christina, acting as Regent.

The "Tracts for the Times," from which the Ritualist, or High Church movement in the English Church rose, in our days, commenced. The legislation on the Irish Church was the proximate origin of them.

1834. The working classes in England began to agitate for further reform of grievances, and to form Trades Unions to help them.

In France great riots broke out at Lyons: in Spain civil war raged fiercely: and in Portugal the monasteries were dissolved.

1835. A British Legion went out to Spain, under Sir De Lacy Evans, to fight for Queen Isabella.

Fieschi fired his infernal machine at Louis Philippe, missed him, but killed Marshal Mortier, and 13 others. Abd el Kader, chief of the Arabs, resisted the French in Algeria.

1836. Two fresh attempts to assassinate Louis Philippe were made this year, and Louis Napoleon, afterwards Emperor, tried to raise a revolution at Strasburg. The war went on fiercely in Spain between the Carlists and the upholders of Queen Isabella.

1837. William IV. died, June 20, aged 72.

VICTORIA.

Sixth Monarch of the House of Hanover, 1837.

MONARCHS CONTEMPORARY WITH QUEEN VICTORIA.

France.	Prussia.
Louis Philippe, 1830—1848.	Frederic William III., 1797—1840.
Second Republic, 1848—1852.	Frederic William IV., 1840—1858.
Second Empire (Napoleon III.), 1852—1870.	Regency, 1858—1860.
Third Republic, 1870.	William I., 1860—1871.
	Becomes Emperor of Germany, 1871.

Spain.
Isabella, 1833—1868.
Interregnum, 1868—1870.
Amadeus I., 1870—1873.
Republic, 1873.

Queen Victoria is the only child of Edward, Duke of Kent, son of George III., and Victoria, his wife. Her father stood next in succession to William IV., and therefore, on his death, his daughter was heir to the throne. Hanover had till now been connected with England from the time of George I., but the Salic law being in force in it, no female could reign over it. Ernest, Duke of Cumberland, next surviving brother of the Queen's father, therefore became King of Hanover, which, henceforth, had no more connection with England.

Queen Victoria was 18 when she began her reign.

1837. A rebellion broke out in Canada, in consequence of the high-handed acts of the local government, which was nominated by the governor and independent of the people.

The French were at war with Abd el Kader in Algeria. The Spanish civil war still raging. The Spanish monasteries were suppressed and the tithes abolished.

1838. Slavery was abolished in the East Indies. The rebellion in Canada was suppressed. Louis Napoleon had been sent to America, in 1836, for his attempt at Strasburg, but having returned to Switzerland, was this year expelled from that country at the request of the French government.

The *Great Western* steamship this year sailed from Bristol to New York in fifteen days.

War was proclaimed by England against Affghanistan.

1839. Our army entered Cabul, after taking Ghuznee. We proclaimed war against the Chinese on account of their destroying a large quantity of opium owned by our merchants, but taken by them to China contrary to an excellent Chinese law prohibiting the importation of a drug which was ruining the people.

The Penny Postage Act was passed, and Daguerreotypes were first taken this year.

1840. The Penny Postage Act came into operation, January 1. Up to this time the postage of a single sheet was—for 15 miles, or under, 4*d.*;

15 to 20 miles, 5*d.*; 20 to 30, 6*d.*; 30 to 50, 7*d.*; and so on. A letter from London to Edinburgh cost 1*s.* 1*d.*, and letters sent by ships cost, on an average, 2*s.* each.

Dost Mahommed, ruler of Affghanistan, surrendered in November.

The Carlist war in Spain ended. In France the remains of Napoleon I., which had been brought from St. Helena, were received with great pomp and deposited in Paris.

Queen Victoria was married February 10 to Prince Albert of Saxe Coburg Gotha, and the Princess Royal was born November 21.

1841. Louis Napoleon tried to raise an insurrection in France by landing at Boulogne; was taken and sentenced to imprisonment for life in the fortress of Ham.

A great agitation rose in Britain against the Corn Laws.

The Affghans rose against the British, and murdered Sir Alexander Burnes and Sir W. Macnaughten.

The Prince of Wales was born November 9, a year, less twelve days, after his sister.

1842. The English army and all its followers were massacred in the Khyber Pass, Affghanistan, on their retreat to India, one person—Dr. Burnet—alone escaping. But before the end of the year fresh armies from India had reconquered Affghanistan, and retrieved the honour of our flag.

The Anti-Corn Law League in full activity.

The Russian serfs were this year emancipated, as a measure for humbling the power of the Russian nobility.

1843. Sir Charles Napier conquered Scinde.

O'Connell agitated in Ireland for repeal of the Union.

Isabella of Spain, now 13 years old, was declared legally of age.

The Free Church formed in Scotland by a great secession from the Established Church.

1844. The Factory Act for shortening the hours of labour was this year passed.

1845. The first Sikh war broke out in Upper India. Battles of Moodkee and Ferozeshah.

The Arab war with the French still continued in Algeria.

Sir John Franklin sailed on his last Arctic expedition, May 23.

1846. The Corn Laws repealed. The Sikhs, after more battles, submitted. A terrible famine broke out in Ireland.

Two more attempts were this year made in Paris on Louis Philippe's life. Louis Napoleon escaped from Ham, May 25.

Pope Pius IX. elected, June 16.

1847. Daniel O'Connell died at Geneva on his way to Rome. He directed his heart to be sent to Rome, and his body to Ireland.

Parliament voted £10,000,000 to relieve the Irish famine. Caffre war.

Abd el Kader yielded to the French. There was great political agitation in France. The Jesuits were expelled from Switzerland.

Maria Louisa, Napoleon's widow, died, aged 56.

The United States at war with Mexico. Sewing machines invented and patented in the United States.

1848. Revolution in France. Louis Philippe escaped to England as Mr. Smith. The Republic was proclaimed in Paris.

In April the Chartists attempted a great demonstration in London, and in Ireland there was an attempt at rebellion. In June an awful insurrection broke out in Paris. Louis Napoleon was elected to the National Assembly for four departments, and was elected President of the Republic, December 20.

The second Sikh war broke out in India.

This was the year of Revolutions.

Louis of Bavaria had to abdicate. Four Revolutions broke out in Austria. The King of Prussia had to yield to the demands of his people. The Kingdom of Naples rose in revolt. There was a Revolution in Rome, Piedmont, Venice, &c. All Europe saw the flight of kings and princes. Gold was discovered in California. Sir Roderic Murchison advised rewards to be offered for the discovery of gold in Australia.

Sir J. Ross returned from the search for Sir John Franklin.

1849. Cholera in England. The Hungarians who had taken up arms against Austria were defeated. Rome was taken by the French after a siege, and held by them for the Pope. The Sikh war ended in the annexation of the Punjaub by Britain.

1850. New expeditions sent out in search of Sir John Franklin. £20,000 offered by Government for discovering his fate.

The first submarine telegraph laid, between France and England.

1851. The Great Exhibition was opened in Hyde Park, and visited by upwards of 7,000,000 persons in six months.

Gold discovered in Australia. The paving in Melbourne was lifted, and gold found beneath it.

1852. The Crystal Palace at Sydenham built from the materials of the Great Exhibition building. Louis Napoleon became Emperor of the French.

1853. Immense emigration from Ireland. Eight and a half tons of gold reached Plymouth from Australia.

The Jews were admitted to Parliament.

At the London Poultry Show £1,000 were asked for a pen of Cochin China fowls: £5 5*s.* for a single egg.

Lieutenant Cresswell, of the *Investigator*, returned to Woolwich, having accomplished the North-west Passage.

Strong feeling in England against the aggressions of Russia on Turkey. Declaration of war by Turkey against the Czar, Nicholas.

1854. March 28. England declared war against Russia. Battle of

the Alma, September 20. Siege of Sebastopol began October 17. Battle of Balaklava, October 25. Battle of Inkerman, in which 8,000 British with 6,000 French held their ground against 60,000 Russians, and forced them to retreat, with the loss of 15,000 men, November 5.

1855. Our army before Sebastopol was in great destitution, many hundreds of the Guards dying for want of food and shelter. The Emperor, Nicholas, died, March 2. Sebastopol fell, September 10. The news reached the Queen, at Balmoral, the same day.

1856. The Victoria Cross instituted for bravery before the enemy. Peace with Russia, March 30. The loss of our army had been—killed, 1,775; died from wounds, 1,870; died from cholera, and other diseases brought on by exposure, bad food, starvation, &c., 15,669!

1857. A great mutiny of the Indian army broke out, with massacres of the Europeans in many parts. Havelock, Sir John Lawrence, General Neill, and others saved the empire by their devotion and ability.

1858. The British triumphed over the mutiny in India. Lucknow was relieved. War with China. Orsini attempted to assassinate Louis Napoleon.

Vancouver's Island made a colony.

The Princess Royal married the Crown Prince of Prussia.

Atlantic Telegraph cable laid.

1859. The fate of Sir John Franklin and his crews discovered by Sir H. McClintock.

The French aided the Sardinians against the Austrians, in Italy. Battles of Magenta and Solferino, and peace as the result, with the cession of Lombardy to Sardinia.

The Volunteers were established in Britain, in great part from vague fear of an invasion from France.

1860. Nice and Savoy ceded to France as payment for services in the war of the year before.

Garibaldi, with a thousand volunteers, landed in Sicily, and conquered the Kingdom of Naples for Victor Emanuel.

The *Great Eastern* steamship sailed for New York.

Another war with China, in which the English and French, acting together, took Pekin. War with the Maories in New Zealand.

Great disputes between the Northern and Southern States of America, on slavery.

1861. Complete emancipation of the serfs in Russia.

President Lincoln's election led (March 4) to civil war in the United States. Battle after battle was fought, at first to the advantage of the South.

It was found that within a circle of six miles from Charing Cross, London, there are 2,637 miles of streets.

The paper duty was abolished in England October 1, leading to the issue of penny newspapers and the great cheapening of books, &c. The

census showed the population of Great Britain and Ireland to be 29,000,000.

Prince Albert died December 14, aged 43.

1862. The Prince of Wales visited Egypt and the Holy Land. The *Monitor*, an iron-clad vessel, attacked the Federal fleet in Newport Roads, and thus introduced the era of iron-clad vessels of war, and of ships made with rams.

The Slaves in the States were proclaimed free (September 22) after January 1, 1863.

The war till now had gone sorely against the Federals.

Garibaldi defeated and wounded at Aspromonte by the soldiers of the King of Italy, in his attempt to take Rome for the Italian people.

1863. The Prince of Wales was married to the Princess Alexandra, daughter of Prince Christian of Denmark, March 10.

Captains Speke and Grant returned from their travels to discover the sources of the Nile.

The question whether England should recognise the Confederate States was warmly agitated this year. The *Alabama* had escaped last year from Liverpool, and had done great damage to American shipping. This year two rams building at Liverpool for the Confederates were detained by Government.

1864. War between Austria with Prussia, and Denmark, ending in the cession of large portions of Danish territory to Prussia.

The transportation of criminals to Australia ceased this year.

The war in America began this year to go heavily against the South. In November President Lincoln was elected for a second term of four years.

1865. The Fenians gave great trouble in Ireland. An outbreak of the negroes threatened in Jamaica was put down with great sternness by Governor Eyre. The cattle plague was very prevalent this year.

The American civil war was ended on April 9, by the surrender of the last Confederate army, under General Lee; but it was followed on the 14th by the murder of President Lincoln. The number of men lost in this war has never been ascertained, but including both sides not fewer than about a million fell by disease, in prison, on the battle-field, and from wounds.

1866. The Fenian conspiracy was still rife in Ireland: a rising was feared, and great precautions against it taken by Government.

A dreadful panic in money matters was caused by the stoppage of Overend, Gurney, and Co., in May, their debts being over eleven million pounds sterling. Bank after bank shut its doors, and wide-spread ruin followed.

On the Continent war broke out between Prussia and Austria for the championship of Germany, which Prussia won at the battle of Sadowa, where the Austrians were utterly defeated. The position gained by

Prussia, through this victory, by raising a rival to France in military influence and strength in Europe, was the real cause of the war of 1870, in which France was crushed.

1867. The Fenians still kept up their plots and attempts to revolutionize Ireland; but their leaders had by this time been captured, tried, and sentenced to penal servitude, and the movement was slowly subsiding.

The Reform Bill of Mr. D'Israeli, giving a vote to all householders in towns, boroughs, &c., was passed this year. Trades Union outrages in Sheffield caused a commission to be sent to inquire into them.

Three Fenians were hanged in Manchester in November, for their share in shooting a police sergeant, who was preventing the release of some Fenian prisoners. The outer wall of Clerkenwell Prison, London, was blown up, Dec. 13, in an attempt to set free some Fenians. By this six persons were killed and over 100 mutilated or wounded.

A railway over Mont Cenis, in the Alps, was opened this year.

1868. Theodore, King of Abyssinia, having kept some Englishmen in captivity, an expedition, under General Robert Napier, was sent against him from India, and took his capital, Magdala, freeing the captives. It cost £9,000,000.

Mr. Peabody, an American living in London, gave £250,000, in addition to £100,000 previously given, to provide dwellings for the London poor.

1869. The Irish Church was this year disestablished. The Prince and Princess of Wales visited Egypt and the East. The territory of the Hudson's Bay Company was bought by the Canadian Government, and became part of Canada.

George Peabody died this year, and was honoured by a public funeral service in Westminster Abbey, after which his remains were carried to America in H.M.S.S. *Monarch*, Prince Arthur attending the funeral at Portland, Maine. He had given in all £500,000 to improve the dwellings of the London poor. His statue has since been placed at the east end of the Royal Exchange, London.

1870. The Pope, having called an Œcumenical, or General Council, 803 bishops, &c., met at Rome, Dec. 8, 1869, and on the 24th April, 1870, decided that the Pope is infallible.

War broke out between France and Prussia on the 15th July, the true cause being jealousy of Prussia on the part of France. All Germany united to invade France, thus disappointing the French, who had always hitherto been able to have a French party in the German States, and thus to secure some of them on the side of France. Aug. 4—6, the French were routed at Weissenburg, Wörth, and Forbach; on the 18—24th they were routed again at Courcelles, Vionville, and Gravelotte, and the French army of the Rhine was shut up in Metz. On the 2nd September Napoleon III. and 100,000 men surrendered as prisoners of war, after the

battle of Sedan. On the 4th the Empress fled from Paris, and a republic was proclaimed. On Sept. 28th Strasbourg capitulated to the Germans, and on Oct. 28th Marshal Bazaine surrendered Metz to them, with an army of 180,000 men, including fifty generals and three marshals.

The iron-clad turret ship *Captain*, Sept. 7th, foundered in the Bay of Biscay, with 500 men. Her captain was the son of Field-Marshal Sir John Burgoyne.

Charles Dickens died this year of apoplexy, on the 8th June. He was buried in Poets' Corner, Westminster Abbey.

1871. On the 18th Jan. the King of Prussia was proclaimed Emperor of Germany at Versailles, in the palace of the old French kings, who had so often tried to crush Germany.

On Jan. 29 Paris capitulated to the Germans. A war of six months had thus utterly crushed France, and had raised Germany to the supreme power in Europe.

Peace followed the surrender of Paris, France agreeing to pay Germany the sum of £200,000,000 sterling as a war fine, and to surrender the territory of Alsace and Lorraine, including Metz and Strasburg, two of the strongest fortresses in Europe.

A great Communist insurrection in Paris soon after followed, and she had to stand another siege at the hands of Frenchmen. The Commune was, however, overthrown, and Paris retaken by the French army, who committed the greatest atrocities in entering the city. Fifty thousand persons are supposed to have been shot down by them. Some of the Communists had burned the Tuileries, the Hotel de Ville, and other public buildings, before the surrender.

1872. Public thanksgiving for the recovery of the Prince of Wales, who had been very near death from typhoid fever. The Queen, with the Prince and the Princess Alexandra, went in public to St. Paul's to return thanks.

The Claimant to the title and estates of the Tichborne family, after a trial of 130 days, was non-suited and committed to Newgate for perjury.

The agricultural labourers of Warwick struck for higher wages, and an agricultural labourers' union was formed, which before long had 70,000 members throughout England.

Mr. Stanley discovered and relieved Dr. Livingstone, the African traveller.

Earl Mayo, Governor-General of India, was stabbed by a convict at the Andaman Islands.

Joseph Mazzini, the great Italian patriot, died, aged 64, in March.

1873. The agitation in favour of higher wages to agricultural labourers still gathered strength.

Napoleon III. died at Chislehurst. His will showed him to have left only about £60,000.

Lord Lytton, an eminent man of letters, died, and was buried in Westminster Abbey.

War broke out in West Africa with Ashantee.

The Tichborne Claimant's trial for perjury began in April before three judges, at Westminster.

1874. The death of Livingstone, the traveller, announced.

The Gladstone Ministry dissolved Parliament, and a general election followed, giving a majority to the Conservatives.

A new Government formed under Mr. Disraeli.

Prince Alfred married to a Russian Grand Duchess.

The Tichborne trial ended, after lasting 188 days, in the verdict of guilty and the sentence of the Claimant to 14 years' penal servitude.

WORDS SPELT IN THE SAME WAY BUT USED IN DIFFERENT SENSES.

address, *v.*, to speak to; *n.*, bearing; tact; the direction of a letter; a written or spoken speech.
air, *n.*, the fluid we breathe; a tune; one's look; a gas; a light breeze.
angle, *n.*, a sharp corner; *v.*, to fish with a line and hook.
apparent, *a.*, only seeming; clear; evident.
arch, *n.*, the bend of a bridge, &c.; *a.*, full of fun; roguish; chief.
ashes, *n.*, *pl.*, remains of a fire; trees; ash is, also, a colour.
bachelor, *n.*, a student's degree; an unmarried man.
bait, *n.*, a lure; refreshment; *v.*, to worry.
ball, *n.*, a round body; a dancing party.
band, *n.*, anything that *binds;* a company; *v.*, to unite.
bank, *n.*, a ridge of earth, &c.; a house for trading in money.
bar, *n.*, the body of lawyers; a part in a law court; a barrier; a shallow in a harbour, &c.
bark, *n.*, the skin of a tree; a kind of ship; the noise dogs make.
barrow, *n.*, a hand-cart; a sepulchral mound.
base, *n.*, the bottom; *a.*, low; mean; worthless.
baste, *v.*, to beat; to drip its juices on roasting meat; to sew slightly.
bat, *n.*, an animal; a club used in cricket.
batter, *v.*, to beat with repeated blows; *n.*, a paste of flour.
bay, *n.*, an inward bend of the sea; a projecting window; the laurel tree; a colour; 'keeping at bay,' keeping *off;* *v.*, to bark.
beam, *n.*, any large piece of timber; a ray of light; *v.*, to shine.
bear, *n.*, a savage beast; *v.*, to carry; to endure; to give birth to.
beat, *n.*, a stroke; a sentry or watchman's round.
bed, *n.*, a flower plot; a sleeping place; the channel of a stream.
beetle, *n.*, a mallet; an insect; *v.*, to jut out.
bell, *v.*, to cry as a stag does; *n.*, a hollow metal cup for ringing.
bench, *n.*, a long seat; the Judges' seat, hence, the Judges.
bight, *n.*, a bay; a bend in a rope.
bill, *n.*, a proposed Act of Parliament; a money account; a bird's beak; a kind of axe.
billet, *n.*, a note; a log of wood; the paper which a soldier gets to require one to lodge him.
bit, *n.*, a carpenter's boring tool; the iron in a horse's mouth; a small piece.
blade, *n.*, a leaf; the steel of a sword, &c.
blow, *v.*, to be windy; to pant; to flower; *n.*, a stroke.
board, *n.*, food supplied for pay; a table; a plank; the members of a public body.
boom, *n.*, a hollow sound (as of a bittern, a cannon, a *bomb*); a beam for a ship's sail; a chain or beam put to bar a river, &c.
boot, *n.*, a part of a coach; a shoe with leather up the leg; an ancient instrument of torture; *v.*, to profit.
bore, *v.*, to trouble; to pierce; *n.*, a person or thing that wearies one; the tidal wave on rivers.
bound, *v.*, to limit; to leap.
bowl, *n.*, a hollow vessel; a ball; *v.*, to roll.
box, *n.*, a small chest; a tree; a blow; a small room in a theatre; *v.*, to fight with fists.
brace, *n.*, a support; a couple; *v.*, to strengthen.
brake, *n.*, a thicket; a thing to stop the speed of wheels.
brazier, *n.*, a pan for coals; a worker in brass or copper, &c.
broil, *n.*, a quarrel; *v.*, to dress on a gridiron.
brook, *n.*, a streamlet; *v.*, to bear.
brush, *n.*, a thing for removing dust; painting, &c.; brushwood; a skirmish; the tail of a fox.
bull, *n.*, a writing from the Pope; a blunder; the male of the cow.
butt, *n.*, a large cask; a shooting place; *v.*, to thrust at with the head.
calf, *n.*, part of a leg; the young of a cow.
cape, *n.*, part of a cloak; a headland.
caper, *n.*, a kind of pickle; *v.*, to leap, or skip.
card, *v.*, to comb wool; *n.*, thick stiff paper.
case, *n.*, a suit in court; a box; an event; a variation.
cast, *v.*, to fling; to convict of crime; to reckon; to mould metal.
cataract, *n.*, a disease of the eye; a waterfall.
cause, *n.*, reason; an action in law; the interest of a party or person.
caution, *n.*, wariness; security for.
charge, *n.*, care; office; accusation; an address of a judge or bishop; an attack; command.
chase, *v.*, to pursue; to engrave.
chest, *n.*, the upper part of the body; a box.
chuckle, *n.*, to cluck (as a hen); to laugh.
citation, *n.*, summons; quotation.
civil, *a.*, non-military; pertaining to a citizen; polite.
cleave, *v.*, to split; to adhere to.
clerk, *n.*, a clergyman; one who leads

the responses in church; one who keeps accounts.
close, *n.*, enclosure round a cathedral; *a.*, confined; niggardly.
cleve, *n.*, a spice; *v.*, did cleave.
club, *n.*, an association; a wooden weapon; one of a pack of cards.
cob, *n.*, a horse, or pony; an ear of Indian corn.
cockle, *n.*, a weed; a shell-fish; *v.*, to pucker, or wrinkle.
comb, *n.*, a cock's crest; an instrument for the hair, wool, &c.; the wax cells of bees.
commit, *v.*, to do; to entrust; to send to prison.
commission, *n.* a matter entrusted to one; an official body; the doing an act; brokerage, or allowance.
common, *n.*, open land belonging to the public; *a.*, vulgar; general.
communicate, *v.*, to impart; to take the Lord's Supper.
compact, *a.*, firm; *n.*, an agreement.
compass, *n.*, circumference; range (as of the voice); an instrument in navigation.
compose, *v.*, to soothe; to write as author; to put types together.
comprehend, *n.*, to include; to understand.
concordance, *n.*, an index of all the words in a book; agreement.
copy, *n.*, pattern; manuscript for printers; one of an edition of a book.
corn, *n.*, hard skin on the foot; a grain of wheat, &c.; wheat plants.
correct, *v.*, to put right; to punish.
counsel, *n.*, a barrister; advice.
count, *n.*, a nobleman; part of an indictment: *v.*, to reckon; to rely.
counter, *a.*, contrary; *n.*, anything used for reckoning in games; a part in music; a shop table (on which money is counted); the name of some prisons.
course, *n.*, line of advance; race-ground; a service at a meal.
court, *n.*, a yard; the retinue of royalty; a legal tribunal; a hall of justice; *v.*, to woo.
crab, *n.*, a sour apple; a shell-fish.
craft, *n.*, a small ship; a trade; cunning.
crane, *n.*, a bird; a machine for raising weights.
cricket, *n.*, a game; an insect.
crop, *n.*, a bird's stomach; the yield of harvest; *v.*, to reap.
croup, *n.*, a child's disease; part of harness.
crow, *v.*, to boast; *n.*, the voice of a cock; a bird.
cry, *v.*, to call; to weep.
dam, *n.*, mother of an animal; bank to keep back water.
date, *n.*, a fruit; time when.
deal, *n.*, much; a pine or fir plank; *v.*, to share; to trade.
dear, *a.*, costly; beloved; precious.
deck, *v.*, to adorn; *n.*, the floor of a ship.
defile, *v.*, to pollute; *n.*, a narrow passage between hills.
degree, *n.*, 360th part of a circle; grade, or rank; advance.
desert, *v.*, to forsake; *n.*, merit or demerit.
die, *n.*, a stamp; a small cube used in gambling; *v.*, to cease to live.
diet, *n.*, food; a political assembly.
divers, *n.*, *pl.*, men who go below water; *a.*, various.
dock, *n.*, a plant; a place for repairing or mooring ships; to cut off.
down, *n.*, a chalk upland; soft feathers; *adv.*, opposite of up.
draw, *v.*, to delineate; to drag.
drill, *v.*, to bore holes; to train soldiers.
drug, *n.*, a medicine; anything unsaleable.
dun, *n.*, dark colour; a troublesome creditor.
ear, *n.*, a head of wheat; the organ of hearing.
elder, *n.*, a tree; *a.*, older.
engross, *v.*, to copy law writings; to occupy wholly.
entertain, *v.*, to consider; to receive as guests; to amuse.
even, *s.*, evening; *a.*, level; not odd; *adv.*, notwithstanding.
exact, *v.*, to demand; *a.*, precisely agreeing.
express, *n.*, a special conveyance; *v.*, to utter.
fair, *a.*, just; beautiful; favourable (of a wind); a market.
fare, *n.*, passage-money; food.
fast, *v.*, not to eat; *a.*, quick; firm.
fawn, *n.*, a young deer; *v.*, to flatter cunningly.
fell, *a.*, cruel; *v.*, perfect of to fall; to cut down; *n.*, a hill.
fellow, *n.*, a mate; a member of a university; a mean man.
felt, *v.*, perceived by the touch; *n.*, a kind of cloth.
ferret, *v.*, to hunt out; *n.*, a weasel; narrow ribbon.
figure, *n.*, a number; a likeness; shape.
file, *n.*, arranged papers; a rasp.
fine, *a.*, clear; slender; *n.*, a penalty in money; the end.
firm, *n.*, a copartnery; *a.*, strong; fast.
fit, *n.*, a convulsion; *a.*, suitable; *v.*, to suit.
flag, *n.*, a banner; a water plant; a paving-stone; *v.*, to lose strength.
flatter, *a.*, smoother; *v.*, to praise insincerely.
fleet, *a.*, swift; *n.*, ships.
flock, *n.*, a tuft of wool; a number of sheep; *v.*, to gather together.
foil, *n.*, a leaf of metal; a fencing-sword; *v.*, to frustrate.
fold, *n.*, a sheep-pen; *v.*, to double.
foot, *n.*, twelve inches; a part of the body.
forge, *v.*, to imitate a signature; *n.*, a smith's furnace.
form, *n.*, figure; shape; a long seat.

founder, *v.*, to go to the bottom; *n.*, one who casts metal; one who originates.
fret, *v.*, to wear by rubbing; to be peevish.
fry, *v.*, to dress food; *n.*, the young of fishes.
fuller, *n.*, a cloth-scourer; *a.*, more full.
game, *n.*, birds, &c., kept for sport; play.
gin, *n.*, an intoxicating drink; a snare.
gloss, *n.*, brightness; a comment.
gore, *n.*, clotted blood; a wedge-shaped piece of cloth; *v.*, to pierce with a horn.
grain, *n.*, a small weight; corn; a particle.
grate, *n.*, an open stove; *v.*, to rub small; to make a harsh sound.
grave, *a.*, solemn; *n.*, the sepulchre.
graze, *v.*, to touch lightly in passing; to feed on grass.
gross, *n.*, twelve dozen; *a.*, large.
ground, *n.*, the earth; *v.*, reduced to powder; sharpened by grinding; to rest upon.
gum, *n.*, a sticky exudation from trees; the flesh about the teeth.
habit, *n.*, dress; custom; constitution.
hail, *v.*, to wish health to; *n.*, frozen rain.
hamper, *n.*, a large basket; *v.*, to impede.
hautboy, *n.*, a strawberry; a musical instrument.
help, *v.*, to assist; to avoid.
hide, *n.*, a beast's skin; *v.*, to conceal.
hind, *n.*, a peasant; a female deer.
hip, *n.*, part of the body; the fruit of the wild rose.
hop, *n.*, a plant; *v.*, to leap on one foot.
host, *n.*, a landlord; an entertainer; an army; a multitude; the consecrated wafer in the Romish Church.
hue, *n.*, colour; an alarm.
husband, *n.*, a married man; *v.*, to use economically.
instant, *a.*, pressing; current; *n.*, a moment.
jar, *n.*, discord; a vessel; *v.*, to disagree.
jet, *n.*, a black mineral; a spout of gas or water, &c.; *v.*, to project.
job, *v.*, to stab; *n.*, a piece of work.
just, *a.*, upright; *adv.*, exactly; almost.
kennel, *n.*, a pack of hounds; their house; a little *channel*.
key, *n.*, what opens or shuts a lock; the stone that binds an arch; the tone on which music is set.
kind, *n.*, a species; *a.*, gracious.
kite, *n.*, a paper toy; a bird of prey.
lake, *n.*, a colour; an inland water.
lap, *v.*, to feed by licking; to fold; *n.*, the fold or bend of the body in sitting.
last, *a.*, the latest; final; *v.*, to continue; *n.*, a load; a mould for boots and shoes.
late, *a.*, slow; long delayed; dead a short time since.
lawn, *n.*, fine linen; the grass before a mansion.
lay, *v.*, to set down; to wager; to produce an egg; *n.*, a song; *a.*, not clerical.
league, *n.*, three miles; a coalition.
lean, *a.*, not fat; *v.*, to lie against.
leave, *n.*, permission; *v.*, to bequeath; to forsake.
left, *a.*, opposite of right; *v.*, not taken.
let, *v.*, to lease a house, &c., to allow; to hinder; *n.*, a hindrance.
letter, *n.*, a message in writing; an alphabetical character.
lie, *v.*, to speak falsely; to rest upon.
light, *n.*, anything that gives light; the light itself; knowledge; *a.*, having little weight; active; gay; frivolous.
like, *v.*, to be pleased with; *adv.*, as; *a.*, resembling; *n.*, an equal.
lime, *n.*, a fruit; a stone.
line, *n.*, a cord; a short note; a row; the twelfth part of an inch; course; one row of words across a page; *v.*, to cover on the inside.
link, *n.*, a torch; a ring in a chain; *v.*, to join.
litter, *n.*, straw, &c., for a bed for animals; things strewn in disorder; a portable bed; a brood of pigs, &c.
lock, *v.*, to fasten with a lock; *n.*, the part of a gun by which it is discharged; a contrivance to raise the level of a canal; a little hair.
long, *v.*, to yearn after; *a.*, protracted.
lot, *n.*, portion; a piece of land; chance.
lute, *n.*, an instrument of music; clay, &c., to stop crevices.
mace, *n.*, a spice; an emblem of authority.
mail, *n.*, armour; letters, &c., conveyed by post.
mangle, *v.*, to mutilate; to smooth linens.
march, *n.*, the third month; an air to which soldiers walk or march.
mass, *n.*, a lump; the Communion Service in the Romish Church.
mast, *n.*, beech nuts and acorns; the pole to which the rigging of a ship is fixed.
match, *n.*, a counterpart; an agreement; a contest; a lucifer; a marriage.
meal, *n.*, a repast; flour of corn.
mean, *a.*, base; vile; middle; *v.*, to intend.
meet, *a.*, suitable; fitting; *v.*, to come face to face.
mint, *n.*, the place where money is coined; an herb.
minute, *n.*, a short note of proceedings; the sixtieth part of an hour.
mole, *n.*, a hairy mark on the skin; a small creature; a breakwater.
moor, *v.*, to anchor; *n.*, a native of the north of Africa; a heath.
mortar, *n.*, a vessel for pounding things in; a short cannon for throwing bombs; lime and sand for cement.
mould, *n.*, rich soil; a shape in which things are cast, &c.; the growths on decaying substances.
must, *n.*, sweet unfermented wine; *v.*, to grow sour and mouldy; to be obliged.
nail, *n.*, a claw or talon; the horns on fingers and toes; a sharp piece of iron for fastening with; a measure two and a quarter inches long.

nap, *n.*, a short sleep; the pile on cloth.
neat, *a.*, unmixed; tidy; *n.*, cattle.
nervous, *a.*, strong; vigorous; weak in the nerves; easily agitated.
oblige, *v.*, to force; to please.
order, *n.*, regularity; a class; a command.
ounce, *n.*, a beast of prey; a weight.
page, *n.*, one side of a leaf in a book; a boy attending on a great personage.
pale, *a.*, wan; dim; *n.*, a narrow board in a fence; an inclosure.
pall, *v.*, to cloy or grow nauseous; *n.*, an official cloak.
palm, *v.*, to pass off fraudulently; *n.*, a tree; victory; part of the hand.
partial, *a.*, fond of; affecting only a part.
paste, *n.*, imitation jewellery; flour and water boiled.
patient, *n.*, a sick person; *a.*, not easily provoked; bearing suffering well; persevering.
peck, *v.*, to pick up food with the beak; *n.*, the fourth part of a bushel.
peer, *n.*, a nobleman; an equal; *v.*, to peep.
pen, *n.*, an enclosure for sheep, &c.; an instrument for writing; *v.*, to write.
perch, *n.*, a small fish; a roost for fowls; a measure of land.
pet, *n.*, peevishness; a favourite.
pike, *n.*, a warlike weapon; a freshwater fish.
pile, *n.*, a heap; a beam driven into the earth for a foundation; the hairy nap of cloth.
pine, *v.*, to languish; *n.*, a fruit; a tree.
pinion, *n.*, a bird's wing; a smaller wheel playing into notches in a larger one; *v.*, to confine the arms.
pink, *n.*, a colour; a flower; a kind of ship; *v.*, to work in eyelet holes; to stab.
pipe, *n.*, a musical instrument; a tube; what is used for smoking; the sound of the voice; a large cask; *v.*, to play on a pipe, &c.
pitch, *n.*, slope; height of key-note in music; thickened tar; *v.*, to fix; to throw; to smear with pitch; to rise and fall, as a ship.
plate, *n.*, dishes, &c., of silver and gold; a small shallow dish; the prize in a race; a piece of flat metal.
poach, *v.*, to cook eggs in a special way; to tread the ground into holes; to steal game; to stab.
pole, *n.*, the axis of the earth; a native of Poland; a long slender piece of wood; a measure of land (5½ yards).
policy, *n.*, course of government; cunning; a written contract; a pleasure ground.
poll, *v.*, to lop the tops of trees; to cut off hair; to register votes; to peel; *n.*, the head.
pollard, *n.*, bran and meal mixed; a tree with its head lopped off; a stag that has cast its horns.
port, *n.*, a gate; a harbour; a hole or port in a ship for the mouths of cannon; manner of walking; a wine from *Oporto*; *v.*, to turn a ship to the left side.
porter, *n.*, a malt liquor; a doorkeeper; one who carries burdens for hire.
post, *n.*, a military or other station; a large stake; a public office; the mail; a kind of writing paper; *v.*, to keep account books; to paste up public notices; to travel quickly.
pound, *n.*, twenty shillings; sixteen or twelve ounces; an enclosure for cattle; *v.*, to bruise to powder.
prefer, *v.*, to like better; to advance; to offer.
pretend, *v.*, to feign; to make a claim.
prune, *v.*, to trim a tree; *n.*, a kind of plum.
puddle, *v.*, to foul water with mud; to change cast into wrought iron.
pulse, *n.*, the throbbing of the blood in the veins; plants like peas, beans, &c.
pump, *n.*, a thin shoe; a contrivance for raising water; *v.*, to draw out by artful questions.
punch, *n.*, an instrument for making holes in metal; a drink; a kind of horse; a popular show.
pupil, *n.*, a scholar; the apple of the eye; a ward.
purchase, *n.*, something bought; whatever aids one in raising weights.
quarry, *n.*, a great pit from which stone is dug; the game a falcon pursues.
quarter, *n.*, the fourth part; a weight (28 lbs.); a part of a town, &c.; lodgings of soldiers; life granted in battle; eight bushels of corn.
race, *n.*, a running; a strong current of water; a mill-stream; a special kind; a family line.
rail, *n.*, a bird; a part of a fence, &c.; *v.*, to scoff at.
ram, *n.*, the male of the sheep; a vessel armed to run into other ships; a battering ram; a machine for raising water; *v.*, to thrust or drive.
rank, *n.*, a row; degree; class; dignity; *a.*, vigorous in growth; rancid; violent.
rash, *n.*, a skin eruption; *a.*, hasty; headlong.
rear, *v.*, to rise on its hind legs (of a horse); *n.*, hind part.
render, *v.*, to inflict; to translate; to yield; to give back; to boil down and clarify.
rent, *n.*, a tear; money paid for use of a house, &c.; *v.*, torn; to let for money.
resolution, *n.*, separation into parts; the unravelling difficulties; a fixed purpose; a formal vote adopted by an assembly.
rest, *n.*, sleep; freedom from disturbance; a support; a pause; the remainder.
right, *a.*, direct; lawful; true; just; fit; *n.*, authority; interest; just claim.

ring, *n.*, a circle; *v.*, to sound a bell; to sound.
rock, *n.*, a mass of stone; *v.*, to move backward and forward.
roe, *n.*, the eggs of a fish; a female deer.
rose, *n.*, a flower; an ornament of ribbon; *v.*, did rise.
rue, *v.*, to lament; to regret; *n.*, a bitter plant.
rush, *n.*, a marsh plant; anything worthless; *v.*, to move forward with violence.
sack, *n.*, a bag; a kind of cloak; a Spanish wine; *v.*, to plunder.
sage, *n.*, a wise man; a culinary herb.
sash, *n.*, a belt worn for ornament; a window frame.
scale, *n.*, part of a balance; a small part of the covering of a fish; a measure; a gradation; a gamut; *v.*, to storm a town by ladders; to peel off.
seal, *n.*, a sea-beast; a stamp; *v.*, to fasten with a seal.
season, *n.*, a convenient time; one of the four divisions of the year; *v.*, to make tasty; to harden; to dry (as of wood).
see, *n.*, a diocese; *v.*, to perceive.
shaft, *n.*, an entrance to a mine; an arrow; the pole of a carriage; handle of a weapon; the body of a pillar.
shed, *n.*, a slight structure for shelter; *v.*, to cast (as a plant its leaves).
shoal, *n.*, a great swarm of fish; a *shallow* part in the sea, &c.; *a.*, shallow.
shore, *n.*, a support; the sea-beach.
shrub, *n.*, a low dwarf tree; a mixture of spirits, lemon-juice, &c.
size, *n.*, weak glue; dimensions.
smelt, *n.*, a small fish; *v.*, to fuse ore; perfect of "to smell."
sole, *n.*, a flat sea-fish; the bottom of the foot; *a.*, only.
sound, *n.*, a narrow strait; noise; part of a cuttle-fish; a probe; *v.*, to try the depth of water; to make a noise; *a.*, healthy.
spirit, *n.*, an intoxicating drink; the soul; bravery.
spring, *n.*, a leap; elastic power; an elastic body; a fountain; the rise of any thing; one of the seasons; *v.*, to grow up; to start; to rise.
stanch, *n.*, to stop the flow of blood; *a.*, constant; steadfast.
steep, *v.*, to soak; *a.*, much inclined; *n.*, precipice.
steer, *v.*, to direct a ship's course; *n.*, a young bullock.
stem, *v.*, to oppose; *n.*, a stalk; the fore part of a ship.
stern, *a.*, harsh; severe; *n.*, the hind part of a ship.
stick, *n.*, a thin piece of wood; *v.*, to adhere; to stab.
still, *n.*, the apparatus for distilling; *a.*, quiet; *v.*, to calm; *adv.*, to this time; *con.*, notwithstanding.
strain, *n.*, a violent effort; a song sung; style; tendency; *v.*, to sprain; to filter.
succeed, *v.*, to come after; to prosper.
suffer, *v.*, to endure; to permit.
suit, *v.*, to please; to fit; *n.*, a set; a petition; courtship; an action at law.
swallow, *v.*, to take into the stomach; *n.*, a bird; the throat.
table, *n.*, a tablet; an index; an article of furniture.
tack, *v.*, to alter a ship's course; to join together; *n.*, a small nail.
taper, *a.*, slender and coming to a point; *n.*, a small candle.
tender, *n.*, a ship attending another ship; an estimate of cost; *a.*, delicate; *v.*, to offer.
till, *n.*, a money-box; *con.*, to a certain time; *v.*, to cultivate ground.
toll, *v.*, to ring a large bell; *n.*, a tax for using a road.
top, *n.*, a boy's plaything; the head of anything.
treat, *n.*, a pleasure conferred; *v.*, to negotiate.
tumbler, *n.*, a glass vessel; a kind of pigeon; an acrobat.
turtle, *n.*, a dove; a kind of tortoise.
usher, *n.*, an under teacher; *v.*, to introduce.
vault, *n.*, an arched room underground; *v.*, to leap.
vice, *n.*, a smith's gripping tool; gross sin; a substitute.
well, *a.*, in good health; *n.*, a deep pit for water.
yard, *n.*, three feet; the cross beam of a ship's rigging; the enclosure connected with a house.

VOCABULARY.

The great fulness of the Notes in this Reader has left comparatively few words for the Vocabulary.

ABBREVIATIONS—

(L.), Latin. (Heb.), Hebrew. (It.), Italian.
(F.), French. (A. S.), Anglo-Saxon. (Ger.), German.
(G.), Greek. (O. E.), Old English. (O. F.), Old French.
(P.), Portuguese.

A prio'ri (L.), term used for a form of reasoning, which, from certain premises, takes to be granted, *beforehand*, certain conclusions.

ab'scess, *n.* (L. *abscessus*), an ulcer, *which sloughs away*.

accom'plishment, *n.* (Fr. *accomplir*), what finishes *or* perfects.

acknŏwl'edgment, *n.* (A. S.), the owning a *knowledge* of, the admitting *or* confessing.

acquies'cence, *n.* (L. *acquiesco*), yielding to, assent, compliance.

ad'amant, *n.* (G. *a*, not, *damao*, to break), a stone so hard that it *cannot be broken*, the *diamond*.

administra'tion, *n.* (L. *ad*, to, *ministro*, to serve), the administering any trust, the serving or conducting the duties of any office.

adum'brate (L. *ad*, and *umbra*, a shadow), to give a *foreshadowing* of, to shadow forth.

adventi'tious, *a.* (L. *ad*, to, *venio*, to come), accidental, what *comes or is added to a thing*, by chance.

affin'ity, *n.* (L. *affinitas*), close relationship.

aggrand'isement, *n.* (L. *ad*, to, *grandis*, great), *the making greater* in wealth, power, &c.

ag'gravate, *v.* (L. *ad*, to, *gravis*, heavy), to *add to the weight of*, to increase, to make worse.

am'ethyst, *n.* (G. *a*, not, *methyō*, to be drunken). A crystal of quartz of a bluish purple colour, of which cups were made by the ancients, in the belief that they *prevented* the drinker *from becoming drunken*.

anach'ronism, *n.* (G. *ana*, up, back, *chronos*, time). An error in date by which events are misplaced.

anal'ogous, *a.* (G. *ana*, according to, *logos*, speech), similar, coming under one class with.

anarch'ical, *a.* (G. *a*, *an*, without, *archē*, government), lawless, revolutionary.

antedilu'vian, *a.* (L. *ante*, before, *diluvium*, a flood), belonging to the period before the Flood.

Ap'ennines, *p. n. pl.*, a chain of mountains which traverses Italy in its whole length from north to south. The highest peak is 9,521 feet high, but the general height is about 4,000 feet. The chain is about 800 miles long.

apoth'ecary, *n.* (G. *apothēkē*, a storehouse), *lit.* the keeper of a storehouse, a licensed seller of medicines.

apotheo'sis, *n.* (G. *apo*, from, *theos*, a God), the being raised *from among* men and *ranked among the gods*.

appall'ing, *a.* (L. *ad* and *palleo*, to grow pale), terrifying, *making one pale*.

appari'tion, *n.* (L. *appareo*, to appear), an appearance.

ar'biter, *n.*, an umpire, a judge.

ar'borous, *a.*, formed by trees (L. *arbor*, a tree).

arch'etype, *n.* (G. *archē*, the beginning, *typos*, a pattern, a type), the first type, from which others are formed.

Archimē'des, *p. n.*, a great Greek mathematician. Born at Syracuse, Sicily. Slain in the siege of the city by the Romans, B.C. 212.

as'inine, *a.* (L. *asinus*, an ass), ass like.

assassina'tion, *n.*, secret murder, from *hashishin*, the name given to an Eastern clan of robbers who drank *hashish*, a spirit prepared from hemp.

assump'tion, *n.* (L. *ad*, to, *sumo*, *sumptum*, to take), a claim, a taking for granted.

Asteroid, *n.* (G. *aster*, a star, *eidos*, form), a minor planet, *having the form of a star*, though small.

asy'lum, *n.* (G. *asylon*, a refuge), a place where one is *safe*.

at'mosphere, *n.* (G. *atmos*, air, *sphaira*, a sphere), the air.

atone'ment, *n.*, lit. *at-one-ment*, the making into one, reconciliation, amends.

Atticise, *v.*, to imitate the fashions, &c., of Attica, the province of Greece of which Athens was the capital.

authentic'ity, *n.* (G. *authentikos*, original), genuineness, authority, given to that which is from an *original* source.

Bal'der, *p. n.*, the sun god in the Scandinavian mythology.

bandoleer', *n.*, an old name for a musketeer. From Sp. *bandolera*, a broad leathern belt musketeers wore over their shoulder, to hang their muskets from, at their left side. It points to the time when the Spanish infantry was the first in Europe.

bap'tism (G. *baptizo*, to dip, to plunge). In Constantine's time baptism was very often deferred to the last moments of life, from a superstitious idea that had gained ground that the rite had a magical effect in cleansing the soul from all sins. Another reason for such delay, with some, was that no after sin might stain the purity thus supposed to be attained.

barom'eter, *n.* (G. *baros*, weight, *metron*, a measure), an instrument which *tells* the *weight* of the atmosphere.

beaker, (Ger. *becher*, Scotch *bicker*). A drinking bowl or cup with a beak or mouth.

beleag'uer, *v.* (Ger. *belagern*), to lay siege to.

bifurca'tion, *n.* (L. *bis*, twice, *furca*, a fork), a division or *forking* into *two*.

biog'rapher, *n.* (G. *bios*, life, *grapho*, to write), one who writes the life of another.

black-a-moor, *n.*, a *black moor*, a negro.

bluff, *a.*, outspoken, almost rude.

Brews'ter, Sir David, *p. n.*, a Scotch natural philosopher of high reputation. Born, 1781; died, 1867.

bronze, *n.* (Ital.), an alloy of copper and tin, of a *brown* or *burned* colour.

Büf'fon, *p. n.*, a French count. An eminent naturalist. Born, 1707; died, 1788.

Bur'mah, *p. n.*, a state of further India, bounded on the west by the British Possessions, and on the east by the Chinese Provinces. It formerly had a long sea coast, but is now shut in from the ocean by British conquests. Pop. about 3,000,000.

busk'in, *n.*, a half boot, anciently worn by actors in tragedy. It had thick soles, to raise the wearer, which was necessary from the great size of the ancient theatres. Masks of a larger size than nature were also worn, partly to make the actor seem larger, partly that the voice might sound out better through the projecting lips, as through a speaking-trumpet. The word "person" (L. *persona*) comes from this. It means to *sound through* (the mask). A *person* was thus one who spoke through an actor's mask.

cal'ibre, *n.*, the size of the bore of a gun, the diameter or capacity of anything.

cam'bric, *n.*, very fine linen, first made at *Cambray*, in Flanders.

Carac'tacus, *p. n.*, or Caradoc. A British king, taken prisoner by the Romans, A.D. 52.

cat'alogue, *n.* (G. *kata* and *lego*, *logos*, to write down), things *set down* and *arranged* in a list.

catechu'men, *n.* (G. *katechumenos*, one who is being *catechised* or instructed in the rudiments of the Christian religion), a candidate for the communion.

cav'alcade, *n.* (L. *caballus*, a horse), a company of persons on *horseback*.

cav'eat, *n.* (3rd person sing. pres. sub. of Latin verb *caveo*, to beware), let him beware.

centraliza'tion, *n.* (L. *centrum*, the centre, *centralis*), the drawing to a centre.

centrip'etal, *a.* (L. *centrum*, the centre, and *peto*, to seek), a force which *seeks* or tends towards a centre, as in gravitation.

centu'rion, *n.* (L. *centurio*), a Roman officer, like our captain. He was nominally over 100 men.

certif'icate, *n.* (L. *certus*, certain, *facio*, to make), a written guarantee of a fact; written testimony to a fact.

characteris'tic, *n.* (G. *character*, a *mark*, *as of a die*), a distinguishing trait or feature.

Chili', *p. n.*, a South American state, stretching along the west coast in a thin line, bounded on the east by the Andes.

chime'ra, *n.* (G. *chimaira*, a she goat; *orig.* a fabulous monster), any wild scheme, or fancy.

chiv'alry, *n.* (Fr. *cheval*, a horse), the rules of knightly courtesy. This meaning of the word rose from the use of the *horse* by knights; whence, also, cavalry.

Chris'tendom, *p. n.* (A. S. *cristen*, a christian; *dom*, rule, sway), the part of the world which professes Christianity.

civilisa'tion (Fr. *civiliser;* L. *civis*), the opposite of barbarism; the arts and culture of a settled state.

cloi'ster, *n.* (L. *claustrum*, *claudo*, *clausum*, to shut), *an enclosed place*, the covered interior walk of a monastery; a monastery itself.

coher'ent, *a.* (L. *con* and *hæreo*, to stick together; lit. *sticking together*), sensible, duly connected.

coif, *n.*, a covering for the head, a cap.

columba'rium, *n.* (L.), a dove-cote.

commem'orate, *v.* (L. *con* and *memor*, mindful, *to keep in mind*), to celebrate the memory of.

commu'nicate, *v.* (L. *communis*, common), to share in *common;* to take the Holy *Communion*.

communica'tiveness, *n.*, frankness, openness; from the root COMMON (L. *communis*).

compat'ible, *a.* (L. *con* and *patior*, to bear with), suitable, consistent.

comptrol'ler, *n.*, one who controls; here, an officer who issues stamps.

concen'trate, *v.* (L. *con*, to, *centrum*, the centre), to gather to a centre.

conchol'egist, *n.* (G. *kongke*, a shell, *logos*, discourse), a student of the science of shells.

con'crete, *a.* (L. *con* and *cresco*, to grow), grown together; a solid mass.

condescen'sion, *n.* (L. *con*, *descendo*, to descend), *letting one's self down* to an act, or person, voluntary humiliation.

confed'erate, *n.*, *con*, together; *fœdus*, *fœderis*, a league; *one leagued with another*.

con'jugate, *a.* (L. *conjungo*, to join together), joined together.

conserv'ative, *a.* (L. *conservo*, to preserve), opposed to change.

constel'lation, *n.* (L. *con* and *stella*, a star), a group of stars.

consum'mate, *a.* (L. *consummo*, to perfect, *con* and *summus*, the highest), in the highest degree.

constit'uent, *n.* (L. *constituo*, a part which *constitutes*), a portion of a whole.

constitu'tion, *n.* (L. *constituo*, to form), the natural condition of one's mind or body; a form of government; the act of establishing; the organization of any thing.

consulta'tion, *n.* (L. *consulo*, *consultum*, to confer on a subject), joint consideration of a subject.

contempt'uous, *a.*, insolent, scornful.

converse'tion, *n.* (L. *con* and *verto*, to turn together—hence, to have intercourse), intercourse, familiar discourse, conduct.

coun'terpoise, *v.* (L. *contra*, against; O. F. *poiser* to weigh, to hang), a counterweight or balance.

court'esy, *n.*, the polite manners of a *court*; politeness.

crapaud', *p. n.* (F.), a toad; given in vulgar rudeness as a name to Frenchmen, from their using *frogs* as an article of food.

crucifix'ion, *n.* (L. *crux*, a cross, *figo*, to fix), to nail on a cross, to crucify; a very ancient form of punishment practised by the Egyptians, Persians, Carthaginians, Greeks, and Romans. Among the Romans it was reserved for the worst crimes and the lowest grades of criminals, mainly for slaves. Hence it got the name of "a slaves' punishment." No Roman citizen could be crucified.

cŭm'ulus, *n.* (L. *a heap*), the clouds which form great white *masses* in the sky.

cy'cle, *n.* (G. *kyklos*, a circle), a great recurring period; an orbit or circle in the heavens.

cyl'inder, *n.* (G. *kylindros*, a roller), *a roller-like* body, round and hollow.

debil'itate, *v.* (L. *debilis*, weak), to weaken.

decant'er, *n.* (F. *décanter*, to pour from), a glass vessel from which wine, &c., is *poured* out.

decen'traliza'tion, *n.* (L. *de*, from; *centrum*, a centre), the loosening from a centre.

deci'pher, *v.*, to translate from *cipher*, that is, from secret writing; to discover.

decompose', *v.* (L. *de* and *compono*, to put together), to separate into component parts.

deco'rum, *n.* (L. *decōrus*, what is seemly), appropriate behaviour, propriety, modest bearing.

decrep'it, *n.* (L. *decrepitus*, noiseless, very old), worn out, noiseless, and feeble, from age.

def'erence, *n.* (from *defer*, the deferring to the opinion of another), respect.

degen'eracy, *n.* (L. *de* and *genus*, *generis*), the *falling from* or *sinking below* one's *kind*, debasement.

del'egate, *n.* (L. *delego*, to send as an ambassador), a representative sent for a special purpose, a deputy.

delir'ious, *a.* (L. *de*, from; *lira*, a furrow), light-headed, wandering in mind; lit. *getting out of the furrow*.

demean'our, *n.*, bearing, behaviour.

demonstra'tion. *n.* (L. *de*, *monstro*, to show), unquestionable proof; outward expression of the feelings.

den'izen, *n.* (old Fr. *deinzein*), a *dweller in* a place.

depend'ency, *n.* (L. *de* and *pendeo*, to hang), the *hanging* or *depending* on another; a province; opposite to what is *independent*.

depre'ciate, *v.* (L. *de*, from; *pretium*, price), to *lessen the value* of anything, to disparage.

despera'tion, *n.* (L. *de* and *spero*, to hope), a state of despair, in which hope is given up.

despond'ency, *n.*, dejection, down-spiritedness.

devel'opment, *n.* (F. *développer*), an unrolling, growth, gradual unfolding.

diag'onal, *a.* (G. *dia*, across, or through; *gonia*, an angle), from *corner* to opposite corner *across* a square or many-sided body.

dialec'tic, *a.* (G. *dialectos*, speech), belonging to a dialect or dialects, logical.

diaphoret'ic, *a.* (G. *dia*, through, and *phoreo*, to carry), causing or increasing perspiration.

dif'fidence, *n.* (L. *diffidens*, distrustful), distrust (of one's self, or of persons or things).

dil'atory, *a.* (L. *differo*, *dilatum*, to carry asunder, to spread out), slow, delaying, *putting off*.

dis'cipline, *n.* (L. *disciplina*, from *disco*, to learn), *instruction*, obedience to strict rules.

discour'agement, *n.* (L. *dis*, *priv.*, *cor*, the heart; Fr. *courage*), that which destroys the courage, disfavour, what *takes away* one's *heart* in a thing.

diverg'ence, *n.*, (L. *dis*, apart; *vergo*, to tend), the going apart, separation, going opposite ways.

divina'tion, *n.* (L. *divinus*, from *Deus*

God), the art of divining or foretelling, as if *inspired by God*.

dog'ma, *n.* (G. *dokeo*, to think; *dogma*, what one *thinks* and utters authoritatively on a point), a doctrine, a religious *decree*.

draff, *n.*, dregs.

Dutch, *p.n.*, of or belonging to Holland, from *deutsch*, German, the Dutch being really Germans, and still retaining their old name. Germany is still called *Deutschland*.

ebullit'ion, *n.* (L. *e*, out, and *bullio*, to boil), the boiling over.

ejacula'tion, *n.* (L. *e*, *jaculor*, to throw, to dart), a word *suddenly thrown out*.

elab'orate, *a.* (L. *e*, out; *laboro*, to labour), *worked out*, finished, complex.

elastic'ity, *n.*, the quality of springing back to a former position or state, *e.g.*, in India-rubber.

Elys'ium, *p. n.* (L.), the heaven of antiquity; any place of special delight.

emancipa'tion, *n.* (L. *e*, out of; *mancipium*, slavery), setting free.

embroid'er, *n.*, to *border*; to ornament with needlework.

em'erald, *n.* (G. *smaragdos*), a precious stone of a bright green colour.

em'phasis, *n.* (G. *en* and *phaino*, *to show strongly*), stress on words to show the meaning forcibly.

emul'sion, *n.* (L. *emulgeo*, *emulsum*, to milk), a *milky* white blending of oil with another liquid.

en'ergize, *v.* (G. *en*, in; *ergon*, work), to *work* earnestly to an end; to breathe vigour into.

enfran'chisement, *n.* (Old Ger., *frank*, free, through F. *franche*), the making free, like a *Frank*.

enlight'enment, *n.*, instruction; the making light in the mind where there had been darkness.

epidem'ic, *a.* (G. *epi*, upon; *dēmos*, the people), affecting large numbers at a time: used as a noun of any disease prevalent in any place for a time.

ep'itaph, *n.* (G. *epi*, upon; *taphion*, a tomb), an inscription *on a tomb*.

ep'ithet, *n.* (G. *epi*, upon; *tithēmi*, to put or place), a name *fixed* or *put upon* one.

epit'ome, *n.* (G. *epitemno*, to cut short), a summary; a compendium embracing in abstract the essentials of that which is *epitomized*.

equanim'ity, *n.* (L. *equus*, equal; *animus*, the mind), evenness of mind.

equilib'rium, *n.* (L. *equus*, equal; *libra*, a balance), an equal balance of weights or influences, &c.

escutcheon (L. *scutum*, a shield), a shield with arms blasoned on it.

Et'na, *p. n.*, a burning mountain in Sicily, nearly 11,000 feet high.

evapora'tion, *n.* (L. *e*, from; *vaporo*, to send off vapour), the flying off in vapour.

exemp'lary, *a.* (L. *exemplum*, an example), suited for an example.

expostula'tion, *n.* (L. *expostulo*, to demand earnestly), remonstrance; reasoning with.

exterminate, *v.* (L. *ex* and *terminus*, boundary; lit. to *drive out of the limits* of a place), to uproot, to extirpate.

extrav'agance, *n.* (L. *extra*, beyond; *vagans*, wandering), the *wandering beyond bounds*, excess, prodigality.

ex'tricate, *v.* (L. *ex*, *tricæ*, hindrances), to free from difficulties, to set free.

fac'et, *n.*, the *face* cut on a crystal.

facil'itate, *v.* (L. *facilis*, easy), to make easy.

fil'ament, *n.* (L. *filum*), a thread.

flexibil'ity, *n.* (L. *flexibilis*, that may be bent), the condition of being easily bent.

flux, *n.* (L. *fluo*, *fluxum*, to flow), melting, flowing.

fop'pery, *n.*, vanity, silly conceit; the behaviour of a fop or affected dandy.

fore'stal, *v.*, lit. to *buy goods before they are* put on *the stall*; to anticipate, to come in before another.

for'mula, *n.* (*dim.* of L. *forma*, a form), a rule, a prescription, *a little form*.

fran'chise, n. (see *enfranchise*), to grant the privileges of a Frank, or free-man, to any one; to grant political rights, such as voting, &c.

fran'tically, *ad.* (G. *phrēn*, the mind), in a frenzied way, distractedly, madly.

frieze (O. E. *frise*, the rough nap on cloth), the part of a building between the cornice and the top of the pillars, often *roughened* with sculptures.

Francis'can Order, an order of monks founded by St. Francis, of Assisi, Italy (1182-1226). They were very numerous in England up to the Reformation. They were known by many names; Franciscans, from their founder; Minorites, from their assumed humility; Grey Friars, from the colour of their rags; Mendicants, from their mode of life.

fu'marole, *n.* (It. *fumarola*; L. *fumus*, smoke), a cleft or hole in the ground, which *smokes*; found in volcanic regions.

fu'siform, *a.* (L. *fusus*, a spindle; *forma*, a form), spindle-formed, tapering at each end.

gal'vanism, *n.*, a form of electricity, named from its discoverer Galvani, an anatomist of Bologna (1737-98).

gar'ner, *v.* (Norman F. *garnier*), to store up in a granary.

gar'net, *n.*, a precious stone.

Gas'cony, *p. n.*, one of the old provinces of France, reaching to the Pyrenees. From 1152 to 1453 it belonged to England.

gaunt, *a.* (A. S.), hollow-cheeked, pinched.

Gen'oa, *p. n.*, a fortified city in the N.W. of Italy. Pop. 120,000. Famous for its velvets, silks, &c., and also for the beauty of its buildings and situation.

geol'ogy, *n.* (G. *gê*, the earth; *logos*, discourse), the science of the stony structure of the earth.

gla'cis, *n.*, a smooth slope (L. *glacies*, ice).

gladiator'ial, *a.* (L. *gladius*, the sword), relating to *gladiators*, who were men set to fight for the public amusement, among the Romans. They were at first criminals or prisoners of war. The first gladiatorial shows at Rome took place B.C. 263. At Constantinople they were suppressed by Constantine, in 325; and at Rome, Theodoric put an end to them in A.D. 500.

grotesque', *a.* (F.), ornamented fancifully after the manner of a *grotto*, extravagant, ludicrous.

Haar'lem, *p. n.*, a town in Holland, 12 miles from Amsterdam. Pop. 30,000. Formerly fortified.

hal'berd, *n.* (O. Ger. *halm*, a pole, and *barte*, an axe), a spear with an *axe* at one side, on a long *shaft*.

hal'berdier, *n.*, a soldier armed with a *halberd*.

ham'mock, *n.* (from *Hamaca*, an American-Indian word for "net"), a netting or other support slung up as a bed.

Hamp'stead, *p. n.*, a district on the north-west of London.

har'binger, *n.*, one who goes before, to provide *harbour*; a forerunner.

haulm (A. S.), the stalk of plants, grain, &c.

hemi'sphere, *n.* (G. *hemi*, half; *sphaira*, a sphere), *half a sphere*, or globe.

Hen'don, *p. n.*, a parish in Middlesex, 9 miles from London.

hered'itary, *a.* (L. *heres*, *heredis*, an heir), descending by inheritance.

hieroglyph'ic, *n.* (G. *hieros*, sacred; *glypho*, to carve; lit. *sacred writing*), the picture writing of the ancient Egyptians, which was used by the priests, and hence was sacred.

histrion'ic, *a.* (L. *histrio*, an actor), relating to the stage or to actors.

homoge'neous, *a.* (G. *homos*, the same; *genos*, kind), of one kind.

hussar', *n.*, orig. a Hungarian cavalry soldier; a light-cavalry soldier. From Hun. *hussar*, twenty, because every twentieth family in Hungary had, at one time, to furnish a cavalry soldier.

hy'drogen, *n.* (G. *hydôr*, water; *gennao*, to produce), a gas which, with oxygen, *produces water*.

hymene'al, *a.* (G. *Hymen*, the god of marriage), relating to marriage.

hyperbol'ical, *a.* (G. *hyper*, beyond; *ballo*, to throw), stated in words which *go beyond* the truth, exaggerated, overstated.

ident'ical, *a.* (L. *idem*), the same.

idiomat'ic, *a.*, belonging to the *idioms* or peculiarities of a language (from G. *idios*, one's own).

i'dol, *n.* (G. *eidolon*, from *idein*, to see), *that which is seen*; an image of the *invisible*, or the *absent*; hence, a loved object, an image which is worshipped.

i'dyll, *n.* (G. *eidyllion*, *lit.* a little image), a short poem in which is an *image of* pastoral life; a narrative poem.

illit'erate, *a.* (L. *in*, *literatus*, *not lettered*), ignorant.

imper'ative, *a.* (L. *impero*, to command), authoritative, obligatory.

impera'tor, *n.* (L.), commander, emperor.

impet'uous, *a.* (L. *impetus*, force), violent.

impetuos'ity, *n.* (L. *impetus*), vehemence, fury.

impov'erish, *v.* (L. *in*, and *pauper*, poor), to *make poor*.

imprecа'tion, *n.* (L. *imprecor*), to *pray for* evil on any one.

incanta'tion, *n.* (L. *incantare*, to sing a magical formula over), the act of *enchanting*, or working upon by spells *sung*.

incapabil'ity, *n.* (L. *in*, *capabilis*, want of power), inability to *lay hold of*.

incip'ient, *a.* (L. *incipio*, to begin), beginning.

inconceiv'able, *a.* (L. *in*, not; *concipio*, to comprehend; through F. *concevoir*), beyond imagining.

incon'gruous, a. (L. *in*, *congruo*, to agree), inconsistent, ill-matched, unsuitable.

inconsist'ent, *a.* (L. *in*, and *consisto*, to stand together), contradictory.

indefin'able, *a.* (L. *in*, *de*, *finis*, a bound), vague, incapable of being expressed exactly; having *no bounds* that *can be ascertained*.

indica'tion, *n.* (L. *indico*, to point out), a *pointing* out, a sign.

in'digence, *n.*, poverty.

ineff'able, *a.* (L. *in*, and *effabilis*, that may be spoken), unspeakable.

inextin'guishable, *n.* (L. *in*, not; *extinguo*, to quench), unquenchable.

infant'icide, *a.* (L. *infans*, *a child who cannot speak*; *cædo*, to kill), the murder of infants.

injunc'tion, *n.* (L. *in* and *jungo*, to join), the act of *enjoining*; precept, order.

inquis'itive, *a.* (L. *inquiro*, to seek into), prying, curious.

installa'tion, *n.* (*in*, and O. Ger. *stallan*, to stand), the placing in a *stall* or office, order, the investing.

intel'ligible, *a.* L. *intelligo*, to choose between), that may be understood.

intel'ligibility, *n.* (L. *intelligo*, to choose between), ability to be understood.

intervene', *v.* (L. *intervenio*), to come between.

interven'tion, *n.* (L. *intervenio*, to come between), a coming between, an interposing.

intona'tion, *n.* (L. *intono*, to sound), modulation of the voice.
inva'riable, *a.* (L. *in* and *varius*), *not varying*.
invincibil'ity, *n.* (L. *in*, not; *vinco*, *to conquer*), unconquerableness.
Ionic capital, the head of an Ionic pillar; the Ionic order in architecture is known by the ram's horn-like ornament of its capital.
Irrawad'dy, *p. n.*, a river of Asia, which traverses the entire length of Burmah. Length, about 1,200 miles.
irriga'tion, *n.* (L. *irrigo*, *to water*), to water fields by artificial means.
irrup'tion, *n.* (L. *irrumpo*, to break out), a breaking into, an invasion.

jon'gleur, *n.* (Fr.), a jester; our *juggler* comes from this word.
jurispru'dence, *n.* (L. *jurisprudentia*), the science and practice of the law.

la'pis laz'uli, *p. n.*, an azure blue precious stone.
la'va, *n.* (from root *to lave*), the melted rock poured from a volcano.
le'gend, *n.* (L. *lego*, to read), unreliable stories respecting the great persons or events of the past. Lives of saints, &c., were read at prayers in monasteries, and hence were called *legenda*, "things to be read," whence the word.
ley, *n.*, a *lea* or meadow.
linguis'tic, *a.* (L. *lingua*, a tongue), relating to languages.

mag'nate, *n.* (L. *magnus*, great), a great person.
magnif'icence, *n.* (L. *magnus*, great; and *facio*, to do), grandeur of display.
maize, *n.*, a West Indian word; Indian corn.
mausole'um, *n.* (L. orig. the tomb of Mausolus, king of Caria, in Asia Minor, who died B.C. 353. It was built by his wife, Artemisia, and was one of the wonders of the ancient world. The remains of it, including the statue of Mausolus, are now in the British Museum.) Any fine tomb.
mech'lin, *p. n.*, a kind of lace, named from the Flemish town of Mechlin or Malines, in which it was first made.
mediæ'val, *a.* (L. *medius*, middle; *ævum*, age), belonging to the *Middle Ages*.
melodrame', *n.* (G. *melos*, a song; and *drama*, a *drama*), interspersed with *songs*.
merito'rious, *a.* (L. *mereor*, to deserve), deserving.
meroquin', *a.*, the leather now called *morocco*.
metamorph'osis, *n.* (G. *metamorphoō*, to change into another form), a change into another form.
metrop'olis, *n.* (G. *meter*, *metros*, mother; *polis*, a city), a mother-city, the chief city, the capital of a nation.
mimet'ic, *n.* (G. *mimos*, a mimic), imitative.
Min'nesing'er, *n.* (Ger. *minne*, love, and *singer*), one of the old German minstrel poets who *sang* of *love* and beauty.
mint, *n.* (A. S.), the place where money is coined.
misapprehen'sion, *n.* (E. *miss*; and L. *ad* and *prehendo*), a *failure to lay hold of* or understand.
misrepresenta'tion, *n.* (E. *miss*; and L. *re-præsens*), a wilful or undesigned error in description or statement, the *presenting* a matter *falsely*.
modifica'tion, *n.* (L. *modus*, a measure; and *facio*, to make), a change of *mode* or manner, a moderating.
mon'astery, *n.* (G. *monos*, alone), a house for monks, who are men pledged to live *alone*, and devote themselves to religion.
mon'grel, *a.* (A. S. *mængan*, to mix), of a mixed breed.
mon'ogram, *n.* (G. *monos*, single; *gramma*, a letter), a *single character* made up of several interwoven.
monot'onous, *a.* (G. *monos*, alone; *tonos*, a note), uttered in *one tone*.
mule-frame (G. *mihl*, a mill), the frame of a machine used for spinning cotton.

Nep'tune, *p. n.*, the god of the Mediterranean Sea among the Greeks and Romans. His Greek name was Poseidon. Used for the god of the ocean generally.
Nice, *p. n.*, a city, formerly Sardinian, but ceded to France in 1859. Pop. 40,000. On the Mediterranean.
nymph, *n.* (G. *nymphē*, lit. a bride, a maiden), a fabled female being inhabiting the earth and the waters.

ob'sequies, *n. pl.* (L. *ob* and *sequor*, to follow), funeral rites (which *follow after* death).
ob'verse, *n.* (L. *ob*, towards; *verto*, to turn), the side *turned towards one*; the side of a coin bearing the principal figure.
octant, *n.* (L. *octo*). The *eighth* part of a circle.
organiza'tion, *n.* (G. *organon*, from *ergo*, to work or do), the structure by which any thing *works*; arrangement.
or'gies, *n. pl.* (G. *orgē*, fury), drunken revels; secret unholy rites, such as were used in the worship of some ancient gods.
o'rison, *n.* (Fr. *oraison*; L. *orior*, to pray), prayer.
ostenta'tiousness, *n.* (L. *ostendo*, to show), vain display, boastfulness.

par'tiality, *n.* (L. *pars*, a part, *partialis*), inclined to one *part* or person rather than to another.
pa'ternos'ter, *n.* (L. our father), the Lord's prayer; the chaplet or string of beads

which Roman Catholics wear, to aid them in counting their repetitions of that prayer.

pathet'ically, *ad.* (G. *pathos*, pain), suffering; so as to touch the feelings.

pa'triarch, *n.* (G. *pater*, a father; *archos*, the chief), the chief father; head of a family or of a communion; an old person.

pau'city, *n.* (L. *paucus*, few), fewness.

pecu'liar'ity, *n.* (L. *peculium*, *peculiaris*, belonging to one's self), private property; a distinguishing characteristic. *Peculium* comes from an obsolete Latin word, *pecu*, cattle, and points to a time when cattle were the chief form of property.

pedant'ic, *a.*, like a pedant, who is one vain in the display of his knowledge. From G. *pædagogus*, a teacher; orig. one who led a child to school.

ped'igree, *n.* (*perh.* from F. *par degrés*), a table of descent which marks the *degrees*, or successive steps.

penin'sula, *n.* (L. *pæne*, almost; *insula*, an island), land almost surrounded by water.

pen'sioner, *n.*, one who receives a *pension*, or payment. Pension comes from L. *pensio*, to pay, to weigh out.

perpendic'ular, *a.* (L. *perpendiculum*, a plumb line), exactly up and down by the *plumb line*.

per'quisite, *n.* (L. *per* and *quæro*, to ask after), a special fee or allowance; a right; lit. *any thing sought after earnestly*.

phenom'enon, *n.* (G. *phaino*, to appear), a natural *appearance*.

philol'ogist, *n.* (G. *philos*, love of; *logos*, a word), a student of *words* or languages.

Philome'la, *p. n.*, Latin name of the nightingale, from Philomela, an Athenian princess, who was fabled to have been changed into a nightingale.

philosoph'ical, *a.* (G. *philos*, loving; *sophia*, wisdom), according to philosophy; rational; scientific.

phrenolog'ical, *a.* relating to phrenology, which comes from G. *phrén*, the mind, and *logos*, science; the science of the functions of the different parts of the brain.

physiog'nomy, *n.* (G. *physis*, nature; *gnonai*, to know), the science which *teaches* the character from the features; the features themselves.

physique', *n.* (Fr.), the bodily form and constitution.

Pi'sa, *p. n.*, an Italian city, 12 miles from Leghorn. Pop. 26,000. The birthplace of Galileo.

Plantag'enets, *p. n.*, *pl.*, an English dynasty. Including Henry II. to Richard III., 1154—1485, 331 years.

point'er, *n.*, a dog which *points* out game.

polit'ical, *a.* (G. *polis*, a city), belonging to the State.

polyg'amy, *n.* (G. *polys*, many; *gamos*, marriage), the being *married to more than one wife* at a time.

por'phyry, *n.* (G. *porphyra*, purple), a very hard volcanic rock or lava. It got its name because the variety in favour in antiquity was the *red* porphyry of Egypt.

preca'rious, *a.* (L. *precor*, to pray); lit. to be obtained *only by prayer*, doubtful.

predeces'sor, *n.* (L. *pre*, *de*, and *cedo*, *cessum*), one who has *preceded* or *gone before* another in any office, but has now *left it*.

pre-em'inence, *n.* eminence *beyond* that of others.

pre'fect, *n.* (L. *pre* and *facio*, one *set before others*), head magistrate of a district.

prel'ate, *n.* (L. *prefero*, *prelatum*, to place before); lit. one *placed over* or *before* another, a bishop.

premature'ly, *ad.* (L. *pre* and *maturus*, ripe), *ripe before its time*.

premon'itory, *a.* (L. *pre*, before; *moneo*, to warn), warning beforehand.

prepon'derate, *v.* (L. *pre* and *pondus*, weight), to outweigh, to exceed.

preternat'ural, *a.* (L. *præter*, beyond and *natural*), what is beyond the natural.

Prima Donna (Ital.) The *first lady* singer in an opera.

prim'al, *a.* (L. *primus*), first.

pris'matic, *a.* (G. *prisma*), caused by a prism, or relating to a prism, which is a triangular piece of glass, like the crystal drops of a chandelier.

procon'sul, *n.* (L.), a Roman officer who acted for the Consul; a Roman governor.

Puck, *p. n.*, a noted fairy; from the Icelandic name for the evil spirit.

punctil'ious, *a.* (L. *punctum*, a point), attending to small points; very exact.

pur'suivant, *n.* (Fr.), a State messenger; an attendant on a herald.

putrefac'tion, *n.* (L. *putridus*, rotten; *facio*, to make), rottenness, corruption.

pyr'amid, *n.* (G. *pyramis*, perhaps from *pyr*, fire, because of its rising in a pointed form), a square figure which narrows to a point at the top.

Pyr'enees, *p. n.*, *pl.*, a mountain range dividing France from Spain. About 250 miles long, by 50 or 60 broad. Their highest peaks range from 8,000 to 11,000 feet above the sea level.

quadrille', *n.*, a dance made up of *four* couples.

quib'ble, *n.* (L. *quid libet*, what you please), an evasion, a play on words; a making words mean *what you please*.

recognit'ion, *n.* (L. *recognosco*, to know again); the knowing again.

reconcilia'tion, *n.* (L. *re* and *concilio*; lit. to call together), the being *reconciled* or brought together again in harmony.

reconstruc'tion, *n.*, rebuilding.
rec'reant, *a.* (L. *re*, back from, *credo*, to believe); lit. having gone back from one's belief, false, treacherous, cowardly.
recur'rent, *a.* (L. *recurro*, to *run back*, to *repeat itself*), repeating itself at intervals.
refract', *v.* (*re*, back, and *frango*, to break), to send back rays of light at an angle.
reful'gent, *a.* (L. *re*, *fulgens*, shining), casting back a shining light; brilliant.
reminis'cence, *n.* (L. *reminiscor*, to remember), a recollection; remembrance of.
ren'egade, *n.* (L. *re*, back, or again; and *nego*, to deny), one who denies his faith or party; a deserter; an apostate.
reprehen'sion, *n.* (L. *re*, *prehendo*, to lay hold of), blame; *the laying hold of by blame, or rebuke.*
represent'ative, *a.* (L. *re*, *presento*, to place before), one who represents, or stands in the place of, another.
repul'sion, *n.* (L. *repello*, *repulsum*, to drive back), the act of *driving back* or away.
res'ervoir, *n.* (Fr.), a *reserve* store of water.
resplen'dent, *a.* (L. *re* intens., *splendeo*, to shine), shining very brightly.
responsibil'ity, *n.* (L. *re*, and *spondeo*, to promise), accountability, liability.
retrib'utory, *a.* (L. *re*, again, *tribuo*, to give), punishing or rewarding again for acts done.
reverb'erate, *v.* (L. *re* and *verbero*, to beat), to *beat* or *send back* sound, light, heat, &c.
rudiment'ary, *a.* (L. *rudis*, rough), elementary, simple.

Sal'adin, *p. n.*, Sultan of Egypt and Syria. He was born in 1137, and died in 1192, at Damascus. He was victorious over the Crusaders, and took Jerusalem from them. Richard Cœur de Lion afterwards took Acre and other towns from Saladin. A man of a very noble nature.
sa'lient, *a.* (L. *saliens*, leaping), prominent, projecting.
Samar'itan, *p. n.*, the people of the city of Samaria, in Palestine. After the captivity of Israel, Jews and other nations united to repeople the city. Having been refused permission to take part in rebuilding the temple at Jerusalem, after the return of Judah from Babylon, they became the bitter enemies of the Jews as a race. This hatred was as bitterly returned.
sanct'uary, *n.* (L. *sanctus*, sacred), a sacred place.
san'guinary, *a.* (L. *sanguis*, blood), bloody.
san'itary, *a.* (L. *sanitas*, health), relating to health.
sarcoph'agus, *n.* (G. *sarx*, *sarkos*, flesh, and *phago*, to eat; orig. a coffin made of a kind of limestone which was thought to *consume the flesh* of the dead), any stone coffin.
satur'nine, *a.*, gloomy, heavy, unexcitable; the temperament said by astrologers to mark those born under the planet *Saturn*.
scep'ticism, *n.* (G. *skeptomai*, to consider, to look into), the condition of *doubting*.
scoria'ceous, *a.* (G. *scoria*, ashes), of an *ashy* nature; applied to the ashes cast out from a volcano.
scru'pulous, *a.* (L. *scrupulus*, from *scrupus*, anxiety), fearful, nice, precise.
scru'pulously, *ad.*, with hesitation and caution; with conscientious exactness.
scrut'iny, *n.* (L. *scrutor*, to search even to the rags), a search *even to the rags*; minute inquiry.
semi'-diameter, *n.*, half the measure across.
sempst'ress, *n.*, a woman who sews; from *seam*.
sens'uous, *a.* (L. *sensus*, a sense), coming specially within the sphere of the senses, or passions.
sin'ister, *a.* (L.), lit. *left*, and hence of *evil omen*; any thing appearing on the left side of a person being, in the opinion of the Romans, a presage of misfortune; unlucky, evil.
slashed, *a.*, slit, so as to show other fabric below; an old fashion.
sono'rous, *a.* (L. *sonorus*, clear, loud), *sounding*.
spasmod'ic, *a.*, acting in *spasms*; fitful, irregular, violent.
spec'ialise, *v.* (L. *species*, a kind), to mention particularly, to single out.
spec'ulum, *n.* (L.), a mirror.
Spez'zia, *p. n.*, a town of the former Sardinian States; 40 miles from Genoa. Shelley was drowned in the neighbouring bay, which takes its name from the district and town.
spright'ly, *a.*, spirit, or *sprite* like.
stam'ina, *n.* (Latin word, *pl.*), strength.
stri'ated, *a.* (L. *stria*, a streak), marked with thin lines or *streaks*.
sub'lunary, *a.* (L. *sub*, under, *luna*, the moon), earthly, belonging to what is *under the moon*.
subor'dinate, *a.* (L. *sub*, under, *ordo*, *ordinis*, an order, a rank), *inferior* in *rank*, &c.
subterra'nean, *a.* (L. *sub*, under, *terra*, the earth), under ground.
superfic'ial, *a.* (L. *super*, over, *facies*, the face), only on the surface, shallow.
sym'phony, *n.* (G. *syn*, together, *phonē*, a sound), a concord, or *sounding* harmoniously together.
synon'ymous, *a.* (G. *syn*, with, *onoma*, a name), meaning the same; some thing *named together with* another thing, as being of the same kind.

taciturn'ity, *n.* (L. *taciturnus*, silent), habitual reserve or silence.
tap'estry, *n.* (G. *tapes*, a carpet), hangings of silk or wool, with *carpet-like* figures, &c., worked on it.
tena'cious, *a.* (L. *teneo*, to hold), holding fast, stubborn.
Ten'eriffe, Peak of, *p. n.*, a mountain in the island of the same name in the Canary group, off Western Africa. It is an old volcano; over 12,000 feet high.
terres'trial, *a.* (L. *terrestris*), of the earth.
the'orist, *n.* (G. *theoreo*, to look at, to think of), one who frames *theories* or *views* respecting matters.
thermom'eter, *n.* (G. *therme*, heat, *metron*, a measure), an instrument for measuring heat.
Ti'tan, *p. n.*, one of a race of fabled giants in the Greek mythology, sons of Heaven and Earth, who made war against the gods.
to'paz, *n.* (G. *topazos*), a precious stone, commonly of a *brilliant* yellow.
trachyt'ic (G. *trachys*, rough), belonging to the volcanic rock called *Trachyte*, which is *rough* to the touch.
trans'itory, *a.* (L. *trans*, beyond, *eo*, *itum*, to go), passing, *going* speedily *away*.
transalu'cent, *a.* (L. *trans*, beyond, *luz*, light), letting light pass through and beyond.
trep'ida'tion, n. (G. *trepo*, to turn), fear, which makes one *turn* to flight.
trib'uneship, *n.* (L. *tribus*, a tribe), the office of a tribune; lit. the chief of a tribe. A magistracy appointed by the Romans for the defence of popular rights.
Trull'ibers, *p. n.*, pl., Parson Trulliber is a character in one of Fielding's novels.

unadul'terate, *a.* (L. *un*, not, *ad*, to, *alter*, another), not *changed* to *something else*; pure, unmixed, undebased.
unadvent'urous, *a.*, timid, cautious.
unavoid'ably, *ad.*, inevitably; so that there is no escaping it.
unbur'nished, *a.*, lit. not made *brown*, unpolished.
uncontroll'able, *a.*, that cannot be controlled.
unmit'igated, *a.* (A. S.), *un*, not (L. *mitigo*, to soften), unalleviated, unsoftened.
unpronounce'able, *a.* (L. *un*, *pro*, and *nuncio*, to speak, to announce), that cannot be spoken out distinctly.
unsubstan'tial, *a.*, wanting in *substance*.
unsympathet'ic, *a.* (G. *sympatheia*), showing no sympathy or feeling.
unutterabil'ity, *n.* impossibility to be uttered; *utter* is from the same A. S. root as *outer*.

va'grancy, *n.* (L. *vagor*, to wander), the condition of a wanderer; houseless, unsettled beggary.
Vancou'ver's Island, *p. n.* in British North America, on the Pacific side. 300 miles long, 75 broad; climate like that of England. Capital, Victoria.
veloc'ity, *n.* (L. *veloz*, swift), swiftness.
ventila'tion, *n.* (L. *ventus*, wind), the circulation of *air* through a chamber, &c.; public examination and discussion.
veran'dah, *n.* (Sans. *varanda*), a covered portico or shade to a building.
vernac'ular, *a.* (L. *vernaculus*, a house-born slave), belonging to house-born slaves; native, natural, of the country of one's birth.
vert'ical, *a.* (L. *vertex*, *verticis*, the *turning* point or top), exactly overhead.
Vesuvius, *p. n.*, a burning mountain, 3,950 feet high, near Naples. First eruption in historical times, A.D. 77. It continued active for nearly 1,000 years; then showed no signs of activity for nearly 600 years. It broke out afresh in 1631, and since then the eruptions have been more and more frequent, till they have become almost annual.
vetturi'no, *n.*, a coachman or driver, from vettura (F. *voiture*), a carriage, a vehicle.
volute, *n.* In Architecture the *rolled* or turned ornament on the head of pillars. From L. *volvo*, *volutum*, to turn.

way'wardness, *n.*, wilfulness, being bent on taking one's own *way*.
weald, *p. n.* A.S.), orig. a *wood or forest*, now an open country.
wor'reting, *a.*, a form of *worrying*; fretting, teasing. Worret is not used now in correct speaking or writing.

THE END.

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